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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORIZATION

HEARINGS

BEFORE THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

FIRST SESSION

ON

NOAA OCEAN AND COASTAL PROGRAMS; THE NATIONAL MARINE FISHERIES SERVICE; AND ATMOSPHERIC AND SATELLITE PROGRAMS

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORIZATION

OCEAN AND COASTAL PROGRAMS

MONDAY, FEBRUARY 28, 1983

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, D.C.

The committee met, pursuant to notice, at 8:59 a.m., in room SR-253, Russell Senate Office Building, Hon. Bob Packwood (chairman of the committee) presiding.

Staff members assigned to these hearings: Dennis Phelan, staff counsel, and James Drewry, minority staff counsel.

OPENING STATEMENT BY THE CHAIRMAN

The CHAIRMAN. Ladies and gentlemen, welcome to the first of three hearings before the Committee on Commerce, Science, and Transportation on the National Oceanic and Atmospheric Administration. Today we will be addressing NOAA's ocean and coastal programs and on March 10 we will consider programs administered by the National Marine Fisheries Service. The committee's overview of the agency will be completed on March 14 when we consider NOAA's atmospheric and satellite programs.

This is the second year the Committee on Commerce, Science, and Transportation has considered a comprehensive authorization for essentially all of NOAA's programs. The purpose of this initiative is to permit regular review of the research, science, regulatory efforts and plans of this agency, which was created in 1970 to improve the Nation's understanding, management and conservation of marine and atmospheric resources.

Since its creation in 1970, a number of additional responsibilities have been delegated to NOAA by law, including the Deep Seabed Hard Minerals Resources Act, the Ocean Thermal Energy Conversion Act of 1980, and the Coastal Zone Management Act of 1972. Authorizations for NOAA are now contained in over 100 public laws.

The unprecedented growth in responsibility of NOAA, requires a more deliberate, comprehensive overview of NOAA as an agency. This committee can no longer authorize various programs within NOAA without considering the agency as an entity. Of special concern to the committee today is the reauthorization of five specific acts. These are: The Ocean Thermal Energy Conversion Act; the National Ocean Pollution Planning Act; title II of the Marine Protection, Research and Sanctuaries Act; title III of the Marine Protection, Research, and Sanctuaries Act; and the National Sea Grant College and Program Act.

In addition, we will examine the status and progress of some additional ocean and coastal programs.

At this point, without objection, I will place in the record an opening statement by Senator Hollings and a prepared statement from Senator Cohen.

OPENING STATEMENT BY SENATOR HOLLINGS

Mr. Chairman, I am pleased you are holding this series of three hearings on the National Oceanic and Atmospheric Administration. NOAA is a victim of OMB's destructive policy of cutting the discretionary civilian programs on the pretext of balancing a budget that is driven mainly by major entitlement and defense expenditures. This agency provides a wide variety of basic scientific services of benefit to the entire society. Yet the Administration's proposed budget cuts for NOAA in fiscal year 1984 are more than $100 million below the agency's base level of funding. OMB recommendations include the termination of the Coastal Zone Management program and the Sea Grant program, the closing of the Great Lakes Environmental Research Laboratory, and the elimination of funding for the undersea research program. In addition, the Administration proposes deactivation of nearly half the oceanic research fleet, serious reductions in geodesy programs and heavy cuts in ocean pollution research.

This is the third year running that OMB has sought deep cuts in NOAA activities. And this is the third year running that I stand in strong opposition to such proposals. Since NOAA's creation in 1970, I have nursed its budget carefully as a member of this Committee and the State, Justice, Commerce Appropriations Subcommittee, and even in our present austere times, I do not believe the nation can afford to stay OMB's course.

The Coastal Zone Management program has helped to build a system of state laws and organizations for managing the numerous and often conflicting uses of our coastal areas. Some 28 states and territories are now participating in this effort, but it cannot be said that these state activities are now capable of being sustained without federal funding. Nor can it be said there is no national purpose for the Coastal Zone program. One of our main reasons for creating this program was to help promote greater uniformity, efficiency, and equity in the management of coastal activity so as to foster the commerce and general well-being of the entire nation. In addition, much of the activity in state coastal areas is directly in support of ventures aimed at the exploitation of the offshore living and nonliving resources under Federal stewardship.

Sea Grant is a similar case in point. It is true that a network of Sea Grant institutions has been spawned by the program, but the survival of this network depends on a continuation of the existing combination of Federal and state funding. Federal money for the Sea Grant program is investment in our future—badly needed seed money for the education of scientists and engineers will be provided as will funds for research supporting the long-term viability and utilization of our natural resources.

These are but two of the most obvious examples of the errors in OMB's ways. I urge my colleagues to evaluate the Administration's budget proposal in light of the fundamental requirements of our people and businesses. And I also urge them to consider the great expense that will be required in the future to rebuild the federal government's capacity to provide the essential services that are proposed for elimination.

STATEMENT OF HON. WILLIAM S. COHEN, U.S. SENATOR FROM MAINE

Mr. Chairman, I am pleased to have the opportunity to testify in support of the reauthorization of the National Sea Grant College Program and Title II, Ocean Dumping Research, of the Marine Protection, Research and Sanctuaries Act (MPRSA). I also intend to use this time to address the problems that have recently developed in Maine as a result of the Site Selection Process for nominating National Marine Sanctuaries.

Representing a coastal state, I cannot overstate the importance of the continuation of these programs to the preservation of a way of life that has existed for three centuries now. The protection of our valuable marine and coastal resources is essential for the future of the residents of my state, and of citizens across this country. While some might argue that federal involvement in ocean-related research and planning should be decreased, I feel this is not a responsible approach. The pressure of competing uses of the oceans and marine resources has not diminished over the past 10 years, since the date of enactment of significant laws like the MPRSA and the Federal Water Pollution Control Act. In fact, looming on the horizon are controversial issues that will demand federally-imposed regulation, and it is imperative that the Congress ensure that these decisions are made in the public interest. The reauthorization of the Sea Grant program and the Ocean Dumping Research Act will help a great deal in meeting this objective.

Since its inception in 1966, the National Sea Grant College Program has expanded into an informative research-gathering network of organizations, whose aim is to provide the basis for decision-making within a national policy.

Despite its title, Sea Grant does not operate solely for the benefit of the 21 states bordering in the Atlantic, Pacific or Gulf of Mexico. The facts regarding this important program demonstrate the relevance of the work of Sea Grant to the nation as a whole.

In 1982, 30 established Sea Grant college programs were set up in 44 separate jurisdictions, including 41 states, the District of Columbia, Puerto Rico, and Guam. Within this framework, almost 300 colleges, universities, secondary schools and other independent institutions participated in the Sea Grant projects and contributed to cooperative research efforts. Seventeen of the 44 participating jurisdictions are areas not having the ocean as a border; six of these are the Great Lakes states. Only nine states, all of which are landlocked, do not participate in the Sea Grant program at all. Technically, then, Sea Grant serves about 80 per cent of the nation. The issues researched by Sea Grant are of benefit to all, however.

A quick look at recent Sea Grant accomplishments demonstrates the diversity and relevance of the program's initiatives. For instance, in Connecticut, Sea Grant has been involved in fisheries port development; in Georgia, the focus has been on the harvesting of underutilized species of fish. Research in Louisiana has focused on ways to preserve valuable wetlands; in Massachusetts the crucial issue of oil spill cleanup was examined. The Michigan Sea Grant program has conducted extensive research into coldwater drowning, and has helped the number of fatalities caused by this phenomenon.

The role of Sea Grant in developing a feasible marine resource usage policy in my own state of Maine is invaluable. Thé program has set up a statewide cooperative effort in marine research, education and advisory service activities, working to help meet the marine and coastal needs of the citizens of Maine. Efforts in the regard have focused on (1) industrial and commerical development, (2) the protection and enhancement of marine resources, (3) fisheries management, (4) fisheries development, and (5) multiple use planning and conflict resolution.

Maine ranks seventh in the nation in fisheries production, an activity which generated some $104 million in revenues in 1981. The contribution of all fishermen across this nation to the gross national product and to individual state economies is a significant one. At the same time, the use of coastal areas for recreational purposes is a key factor in this nation's tourism industry. Additional interests such as energy development and waste disposal add to the attention given our marine resources. The combination of all these factors places a great demand on those resources, and the topic of multiple use planning and conflict resolution becomes a key one for the future.

The national Sea Grant program plays an extremely important role in facilitating discussions, disseminating information, and reducing the pressures caused by competing uses. The reauthorization of this program will send a signal that Congress has not devalued that role. If we act responsibly, Sea Grant will continue to encourage a fuller understanding of our lakes and oceans and the resources within them. Where there are national development needs, Sea Grant programs can assist in establishing a network of research activities and enhancing priority efforts in areas of critical importance.

I urge this Committee to act favorably on the extension of the existing authorizing legislation for the National Sea Grant College Program.

Title I of the MPRSA authorizes the National Oceanic and Atmospheric Administration (NOAA) to conduct a comprehensive and continuing program of monitoring and research on the effects of dumping various kinds of wastes into ocean waters, coastal waters and the Great Lakes.

This is another program which should be reauthorized in recognition of the federal role in establishing a future policy for the ocean disposal of wastes. In the "National Marine Pollution Program Plan," issued under the auspices of NOAA in March, 1982, the importance of federal monitoring of ocean pollution was established: "In the next five years, the National Marine Pollution Program must be responsive to the needs of changing waste disposal policies. The Program must provide the information required to support the establishment of new waste disposal management practices that may be developed as a result of policy shifts" (p. 158).

The last part of this statement, referring to "policy shifts", is of utmost relevance today, because the pressure is coming from several sources to once again use the ocean as a waste disposal option for all kinds of wastes.

Between 1946 and 1970, the United States dumped more than 86,000 containers of low-level nuclear waste into its offshore and coastal waters. During the 1960's, land burial became a more attractive option, and no ocean dumping of this kind of waste has occurred since 1970. In the past two years, however, the ocean disposal of radioactive waste has again been discussed as a viable option as land-based burial sites have proven less than sufficient for the amount of waste produced each year.

Whether one agrees with this so-called "multi-media" approach to waste disposal or not, it is imperative that ocean research be continued at adequate levels to ensure that intelligent policy decisions will be made. A decision to use the oceans for waste disposal affects state and federal fisheries, marine resource use, ecoligical habitat protection, municipal waste programs, coastal residents, and the tourism industry.

In addition to radioactive waste, marine waste disposal deals with dredged material, industrial waste, sewage and brine. Each of these materials needs to be fully understood and their interaction with marine life evaluated as ocean dumping continues to be considered a viable option.

The waste dumped in the ocean does not recognize state or national boundaries. The decision to dump waste in the ocean will be a federal one and requires a federal research effort. The problems associated with ocean dumping will be very different than those related to land-based disposal, and necessitate a thorough, cautious approach.

Reauthorization of Title II of the MPRSA is therefore crucial to the on-going use of our valuable oceans as a waste disposal option. Again, I urge members of the Committee to act favorably on renewing the Ocean Dumping Research act, and I express my support at this time for this important program.

Finally, to begin my discussion of the National Marine Sanctuary Program, I would like to point out that we in Maine are not opposed to its purposes and goals. The ocean and its resources have long been important to Maine's economy. Our knowledge of the processes which take place in the marine world, however, is relatively small. Certainly, in order to protect the living resources which many of our citizens depend upon for their livelihoods, we must encourage the development of meaningful research opportunities which will allow us to become better ocean managers.

Baseline information needs to be developed so that we may know if our resource decisions have been right or wrong. Monitoring the conditions of fish species should take place to ensure that we do not endanger a resource by overharvesting it. Finally, the result of our uses of the ocean should be judged from the effects of that use on the ecosystem, or the whole ocean environment, not only from the results of many individual actions.

The National Marine Sanctuary Program provides us with the opportunity to engage in research which can combine the isolated species approach of fisheries research conducted, for instance, under the Magnuson Fishery Conservation and Management Act (MFCMA) with an ecosystem-wide point of view. In terms of better managing our commercial fisheries, I believe that the information gained from research conducted in this manner may someday help us to increase our ocean yields by better understanding the implications of our ocean activities.

Although the Marine Sanctuaries Program could be of benefit to the commercial fisheries of this nation, overwhelming opposition from Maine fishermen to the marine sactuary proposal for Frenchman Bay, one of two sites nominated on the Maine coast, has prompted me to mention this today.

The opposition has resulted because a faulty proposal characterized the intentions of this marine sanctuary nomination in a narrow light and created mistrust among the local population by supplying them with misleading information. The Site Evaluation, written for the Frenchman Bay sanctuary proposal, implies that the fisheries in the area are currently over-harvested, a conclusion which is of dubious validity at best. Such an unsubstantiated conclusion has only fed suspicion in the area that a sanctuary would mean another layer of fisheries management, beyond that which is already imposed by the MFCMA and the state of Maine.

I do not believe that it was NOAA's intention to impart this message. In fact, I believe that NOAA does not intend to use the Sanctuary Program to impose any regulations in a sanctuary area when similar regulations are already in place.

The Evaulation for the Frenchman Bay site also imples that extensive biological conservation should be practiced in the area and that aquaculture should be substituted for current fishery practices. I do not doubt that aquaculture will assume an increasing role in seafood production in Maine in the future, but its role is undefined at this time. Certainly, local fishermen do not believe that their traditional groundfish, lobster, and scallop fisheries should be replaced by aquaculture practices.

The problem that has occurred as a result of the Frenchman Bay sanctuary site nomination is identical to that which surfaced in Alaska during the first round of comment in that area's Site Selection process. There, too, commercial fishermen believed that their way of life would be displaced or jeopardized in areas designated as marine sanctuaries.

In both of the cases I have mentioned, a lack of understanding of the needs and way of life of commercial fishermen was demonstrated by those who put forward the sanctuary proposal. The alienation of commercial fishermen by the National Marine Sanctuary Program does not have to be the rule, however.

As I have mentioned, the Frenchman Bay proposal was one of two sanctuary site nominations on the Maine coast. The other proposal, the Mid-Coastal site, was prepared by Maine's Department of Marine Resources (DMR) and has received widespread support from members of the local community, including commercial fishermen.

During the development of the proposal for the Mid-Coastal site, the DMR made it clear that the regulation of fisheries in the area would remain with the state of Maine. The agency worked with local fishermen, informing them of the research and educational benefits of the marine sanctuary early in the process. Consequently, I expect the Mid-Coastal site to someday be designated a marine sanctuary.

An understanding of the needs and the way of life of local commercial fishermen was demonstrated by the DMR during the development of the Mid-Coastal Site Evaluation. The success that this insight produced is evidenced by the acceptance of the marine sanctuary concept in that area.

It is obvious to me that the present procedure for nominating sanctuary sites does not adequately solicit the viewpoints of all marine user groups. The emphasis on nominating potential marine sanctuary sites currently stresses too strongly the view of the marine scientist. Although the scientific value of a potential site is the basis for its nomination, the knowledge and views of the working waterman should also be solicited early in the site evaluation process. Unless this kind of change occurs, the National Marine Sanctuary Program will continue to generate the type of controversy that has recently surfaced in Alaska and Maine, and time and money will be spent, only to come up against opposition during the solicitation of public comments from local fishermen.

In order to make the Sanctuary Program work, I urge the Committee to amend Title III of the MPRSA to ensure that the Secretary of Commerce consults with the appropriate Regional Fishery Management Council, prior to proposing a marine sanctuary site which would exist, entirely or in part, within the Fishery Conservation Zone.

This additional requirement, imposed early in the Site Selection Process, would serve to inform NOAA of species and gear regulations which may already exist in the proposed area in order to avoid redundant regulations. Additionally, the review would make it clear to fishermen that the Councils, which are made up largely of industry representatives, have reviewed the sanctuary proposal before the fishermen are asked to comment on the proposal. I believe that this will help allay the fears of fishermen who believe that a marine sanctuary designation would impose additional federal regulatory burdens on the industry.

In addition to requiring the Secretary to consult with the Regional Councils, I urge the Committee to amend the language of the Sanctuaries Act which requires the Secretary to consult with the "responsible state officials involved." If this requirement is expanded to direct the Secretary to also consult with the state officials who have authority over the management of marine resources, I believe that area fishermen would be more inclined to believe that their interests are being more fully considered than is the case today.

Before I conclude my comments on the National Marine Sanctuary Program, I would like to make two general recommendations that I believe would facilitate the success of the program.

First, the name of the program should be changed. The word "sanctuary" implies a wilderness concept where the resources contained in the area are to remain undisturbed. Although this may be the case under some designations, such as the U.S.S. *Monitor* site off the coast of North Carolina, it is certainly not the case for all designations. The designation of a marine sanctuary is not intended to prevent compatible public or private uses of an area, but to provide a mechanism which is intended to ensure the maintenance of a high-value marine environment.

The final recommendation that I want to make is procedural in nature and would require NOAA to briefly outline the regulations that will be imposed and the activities that will be encouraged within the proposed site, so that this information can be publicized in the Site Evaluation that is distributed for public comment. Much of the problem that the Sanctuaries Program is experiencing today is the result of the public being asked to comment on a proposal that is not clearly defined and, indeed, may not be clearly defined for as long as two years, when the Management Plan for the site is circulated for public review.

Thank you again for giving me the opportunity to make these points. I appreciate the time and attention the Committee has given to these important issues, and I look forward to working with members of the Committee in the future to ensure that a sound national ocean policy is developed.

The CHAIRMAN. I would appreciate hearing testimony from Dr. Byrne first. Dr. Byrne.

STATEMENT OF HON. JOHN V. BYRNE, ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, ACCOMPANIED BY REAR ADM. KELLY TAGGART, NATIONAL OCEAN SERVICE; DR. NED A. OSTENSO, RESEARCH; AND PETER TWEEDT, COASTAL ZONE ACTIVITIES

Mr. BYRNE. Thank you, Senator. I have several colleagues with me who will assist in answering questions.

On my far right is Peter Tweedt, who heads our coastal zone activities. Next to me is Ned Ostenso who is responsible for research for NOAA. And on my left is Adm. Kelly Taggart, who is presently handling our activities in the National Ocean Service.

I particularly appreciate the opportunity to visit with you and the committee this morning to review some of the things that NOAA has accomplished during the past year, and to focus on some of the activities which we hope to accomplish during the coming year.

During the past year we have spent a considerable amount of time reorganizing the agency to get a better focus on ocean activities, among other things, and to bring a particular focus to the ocean activities.

We had, at the onset of my tenure as Administrator of NOAA, an organization which I believe did not serve particularly well the interests of the ocean user community or, for that matter, some of the other users of NOAA's services. In our attempts to reorganize the agency we have stressed the fact that we regard NOAA as a service agency and that we wish to in every way be responsive to the users of those services.

We have created four primary services with a supporting research organization. This morning we are here to talk specifically about one of those services, the National Ocean Service.

Within the National Ocean Service we have created four major line organizations, an Office of Charting and Geodetic Services, an Office of Oceanography and Marine Services, an Office of Ocean and Coastal Resource Management, and then a unit which provides marine operations in support of those other activities.

In addition, we are in the process of creating a new organization within NOAA, an entity which we will refer to as Ocean Service Centers. In establishing the Ocean Service Centers, we will attempt to draw on all of the talents and skills within the agency which pertain to the oceans and which can be useful to those who use the oceans, whether for commerce, defense, or recreation.

These Ocean Service Centers, which will be created this year, will draw on, in addition to the National Ocean Service, the Weather Service, the Environmental Satellite Data and Information Service, Fisheries Service, and our research capabilities throughout the agency. The attempt will be to provide for the ocean user the same sorts of services that we provide for those who need information with respect to the atmosphere, specifically, real time information about the world's oceans, historic information where that is of value, and also, to the extent possible, as our talents develop, the ability to predict and forecast activities throughout the oceans.

The first of these Ocean Service Centers will be created and in operation sometime this summer in Seattle, and before the end of the year we anticipate the completion and operation of at least two additional Service Centers, all of this in an effort to be more responsive to the people who use the ocean.

I have submitted for the record a prepared testimony. It is somewhat lengthy. Rather than take time to go through that in great detail, I would rather summarize it very briefly and to address not only the activities of the National Ocean Service, but also make some comments with respect to reauthorization of a number of pieces of legislation which will come before this committee.

In the prepared testimony, there are sections which pertain to ocean and coastal resource management, ocean services, mapping, charting and geodesy, program support and ocean research. We have also addressed some of the activities with respect to reauthorization of the National Sea Grant College Act, Marine Protection, Research and Sanctuaries Act, the National Ocean Pollution Planning Act, and the Ocean Thermal Energy Conversion Act, and I will address those very briefly.

With respect to our Ocean and Coastal Resource Management, we have in that particular unit included all of our activities which previously were included under the Coastal Zone Management Office of NOAA. These include the coastal zone management program, coastal energy impact programs, the national estuarine sanctuary program, and marine sanctuary program. These are described in significant detail in written testimony, and I will not review those at this time but would be responsive to any questions which might arise.

With respect to our ocean thermal energy conversion activities, we essentially have the licensing function for the Government in this area. We have activities under way now with four corporations that are interested in presumably applying for permits at some time in the future.

In the activities involving deep seabed mining, our activities to date have involved the procedures for developing exploration licenses. We are presently engaged in the development of exploitation or mining permit regulations, and are also heavily involved with international negotiations involving reciprocal States' agreements between those countries which have the capability of mining at the present time or in the very near future, and activities have been significant during the past year in that area.

Also, in the area of seabed mining, we have continued a program in ocean minerals resource evaluation. This has focused primarily on research activities with respect to polymetallic sulfides. If there is one element of the Deep Seabed Mining Act which might simplify it, for NOAA at least, it would be to include as part of the Deep Seabed Mining Act all of the hard minerals of the deep seabed, which would include polymetallic sulfides and any other hard minerals which we have not yet discovered. And I think it is appropriate to say that inasmuch as a few years ago we had no knowledge of the polymetallic sulfides of the deep sea floor.

In the area of ocean services, one of our primary focuses has been on providing that information which would insure the health and safety of those who use the oceans. This to a great extent focuses on such activities as tide prediction, the preparation of tidal data, focusing not only on the ocean, but also on the Great Lakes, and information with respect to ocean circulation in the near-shore areas. We will continue those activities as we move ahead with our ocean service program.

We also include within our ocean service, activities involving the national marine pollution program. As you know, NOAA has a responsibility for coordinating activities throughout the Federal Government with respect to ocean pollution research and monitoring, and we have, as a lead agency, been charged with developing a 5-year comprehensive program which serves as a plan for the development of pollution-related activities by other Federal agencies, and also as a guideline to NOAA in development of its internal ocean pollution research and monitoring plan.

Also within our ocean service category is a program we refer to as the ocean resource coordination and assessment program, now part of the Ocean Assessments Division within our Office of Oceanography and Marine Services. This is an activity that attempts to bring together all the existing information pertaining to the ocean within 200 miles of our coast. We have prepared a number of atlases in this particular area. In 1983 we anticipate the completion of the "Gulf Coast Data Atlas", which will be of value, we believe, to anyone using the oceans and the near-shore area, whether for development purposes or for response to accidents involving pollution.

The mapping, charting and geodesy programs continue. These were formerly located under what we called the National Ocean Survey. As part of our reorganization, we have transferred some of the activities of the former National Ocean Survey and placed them in our oceanography and marine service programs. The charting activities continue in the Office of Mapping, Charting, and Geodetic Services. These involve not only nautical charting, but also aeronautical charting as well, and in addition, include the geodetic services which are provided by NOAA for all mapping activities involving the continental United States.

The geodetic activities are divided into two categories, those involving horizontal data, and also those involving vertical control. Virtually all of the maps which are developed for the United States for any purpose rely on the geodetic services which are provided by NOAA.

We will continue in this area. We regard this as one of our prime activities. It is an area in which we believe we are the world leaders. It is an area in which we are attempting to, as much as possible, involve cost-sharing agreements with private, State and local activities. It is an area in which we are using the very latest in terms of equipment, global positioning systems, and new techniques involving long baseline interferometry which should enhance our capability to accurately measure the Earth's topography and to increase our effectiveness, in some estimates, as high as by a factor of 20. This is a major portion of our activity involving charting and geodesy.

In the area of program support, we operate a fleet of vessels primarily in support of our activities in charting and mapping, also in research, and to some extent, in fisheries. I am sure there may be some questions on them later.

There is also, as part of our program support activities, a NOAA diving program which focuses on the safety and training of NOAA divers and providing recompression chambers. It is working with the Environmental Protection Agency right now to develop techniques for diving in hazardous polluted waters, a topic of some interest, I think, to the country at this time.

In support of all of these activities we have a program involving oceanic research which is both applied and somewhat fundamental in nature. It is in support not only of our activities within NOAA, but also those which are contracted out to universities and other private organizations, and focuses primarily on the coastal waters of the United States and the Great Lakes.

These topics are all included in the testimony in some detail.

In addition, we have commented on the national sea grant college program. It is a program which I think everyone judges to have been a successful program, one which has involved and has developed a network of institutions around the country, carrying on research, extension activities, and education, designed ultimately to improve our use of the oceans. Because much of the activities of this program are of a regional and local nature and are in direct support of industry, and in fact, enjoy the direct support of industry, the administration has taken the position that inasmuch as the program has achieved the success, that it is appropriate at this time to transfer the activities to the States and industry, and as such, the administration position is not to request additional funds for the sea grant program at this time.

Other elements of activity which we were asked to comment on, including titles II and III of the Marine Protection, Research and Sanctuaries Act, which pertain to the marine sanctuaries program and also to the ocean dumping aspects of the program, the administration supports both of these and recommends that both of these sections be reauthorized during this year.

I mentioned earlier that NOAA has been charged with the planning activities for the Federal Government under the National Ocean Pollution Planning Act. We believe this is an important activity, that such coordination is necessary, and that such plans are necessary for the wise response to the use of the oceans as a sink for some of our wastes, and also in our efforts to ameliorate the effects of undesirable addition of materials, that is, pollution, to the ocean.

So we request and recommend that the National Ocean Pollution Planning Act also be reauthorized.

Earlier I addressed the matter of the ocean thermal energy conversion program. Although this appears to be an industry which has not yet taken off, it is one which does indicate possible promise for the development of energy resources throughout the world. We believe that it justifies reauthorization as we continue to work with industry to develop activities in this particular area.

This concludes my oral comments, sir. As I indicated, I have submitted a rather lengthy testimony for the record, and at this point I would be pleased to attempt to respond to any questions which you or the committee may have.

The CHAIRMAN. John, I thank you.

I would ask the clerk to hold us to 5 minutes because I think we will have several rounds for Dr. Byrne, and we have many other witnesses to go.

John, you glanced over the sea grant program and said you have not asked for any additional funds. Actually, what you are doing is simply abolishing the sea grant program, is it not?

Mr. BYRNE. Yes, except that I think the sea grant program, as such, transcends NOAA at this point. There have been, 19 sea grant colleges recognized for their expertise in education, research and extension along the lines that were originally authorized under the sea grant program. We would see that in many cases the support for these programs amounts to at least 50 percent at this time from the States and from the industrial counterparts which they attempt to serve. And so we see the shift, in a sense, as the States and industry begin to take over the program, as the Federal Government steps away from it.

The CHAIRMAN. But in answer, the amount of money that you allocated for sea grant in the budget this year is zero.

Mr. BYRNE. That is correct.

The CHAIRMAN. And how much was the funding for sea grant this year?

Mr. BYRNE. I believe under the continuing resolution it was approximately $35 million.

The CHAIRMAN. Does the sea grant program provide any benefits for other NOAA programs, or does its elimination adversely impact NOAA in any way?

Mr. BYRNE. I think that if the activities which presently are carried out under the sea grant banner, such things as aquaculture would disappear. I think that from the national perspective this would be unfortunate. I think there is a future for aquaculture, using that only as an example.

So although NOAA has no aquaculture program as such, the disappearance of all the activities which presently exist under sea grant would be detrimental, I think, to the country.

On the other hand, I do not think that would happen. I think that because of the success, the maturity of the program, the activities which are presently being carried out, at least those activities which are warranted would be picked up, would be supported by industry and by State and local areas.

The **CHAIRMAN**. Well, now, you are very optimistic and certainly testified to the contrary. From what we have heard from the different universities involved in sea grant programs, most States are operating under balanced budget amendments and are whacking and whittling away to try to reach a balanced budget. Higher education in most States suffers many of these cuts. And I do not need to tell you what is happening in Oregon.

It is your contention that the sea grant universities which now are getting approximately 50 percent of their total money either from State or industrial sources, will be able to get 100 percent of their money next year from these sources at a time when these sources are whittling back on their expenditures?

Mr. **BYRNE**. I think that would be the position that we would take. I recognize the transition problem between now and then, but I think many of the programs that would be carried out under sea grant auspices or by those institutions which have oceanographic efforts could be supported through other programs.

Let me expand on that, if I may. Within NOAA we see several opportunities for support of university research. Sea grant focuses primarily on one aspect of this. We also support universities in a number of ways in other areas of oceanography, and incidentally, in the atmospheric sciences as well.

The **CHAIRMAN**. Those areas are not increasing to any significant degree in the budget this year.

Mr. **BYRNE**. They are not, although there will be an effort to increase these. These are funded not specifically as line item units separated from the rest of the NOAA program, but in fact, are included under the line operations, the Weather Service, the National Marine Fisheries Service, and so on, and do not appear specifically as university-oriented funds. They do, in fact, end up in universities.

The **CHAIRMAN**. Let me ask you specifically about Oregon State. Do you seriously think that, if we zero out the Federal sea grant program, we will pick up the difference of cost in Oregon next year?

Mr. **BYRNE**. To be very honest with you, Senator, I would be very surprised if the State of Oregon picked up 100 percent of the sea grant program.

The **CHAIRMAN**. I think the State might be inclined to go in the other direction. Considering the exigencies of the budget, they would say "the heck with it. If the Federal Government is going to cut us out of half of this money, we will cut out the other half and cut out sea grant and save the money because we do not have enough money for higher education."

I am afraid that response may be a possibility that the legislature would consider. But I agree with you totally, they are not going to go the other route. They are not going to find some way to make up the difference if we on October 1 this year say that that is the end of funding sea grant.

Senator Lautenberg?

Senator **LAUTENBERG**. Thank you, Mr. Chairman.

Mr. Byrne, where in summary fashion, do the bulk of these savings come from? We know there are significant cuts, based on the statement you just made about sea grant elimination.

Where is the essence of these cuts coming from?

Mr. **Byrne**. I do not think there is a single locus we could point at to say this is where most of the funds are coming from. There have been substantial savings accomplished in the fisheries area, some in research. We have taken some cutbacks where we think we can improve our efficiency or reduce some of the lower priority programs in our national ocean service area.

We are in for a transition where, as part of the reorganization, we are attempting to achieve some economies, and I think those are manifest in the reductions as well.

Senator **Lautenberg**. Do you think these programs deserve continuation generally?

I assume you would agree, despite the fact that the money for sea grant is going to be eliminated.

Was there a value to those programs?

Mr. **Byrne**. To the sea grant programs?

Senator **Lautenberg**. Yes.

Mr. **Byrne**. Oh, I believe there was. I think everyone would agree that over the years sea grant has been a very successful program.

Senator **Lautenberg**. The coastal zone management program?

Mr. **Byrne**. The coastal zone management program is in a transition from the grant program which originally established planning and also the development of State coastal zone plans. We are now, I think, moving into an era where right now, roughly 90 percent of the coastal areas of the United States are under an approved Federal coastal zone plan. I think at this point we should move into a different management aspect of the coastal zone program.

There are still a few States which do not have approved coastal zone plans. I think in our best dreams we would have wished that all of the States had responded aggressively at the same time so that such programs and plans were in place. But we are now moving into an area where it will be necessary to monitor these plans. One phase of the activity is the element of federal consistency to the federally approved State plans. This is something that requires constant vigilance and interaction with the States.

Senator **Lautenberg**. You are satisfied, I take it, that much of the program can be continued through efficiency, as I have heard you say. I come from New Jersey, and we have a lot of coastline for the size of our State. We are involved in many ways in marine industries, concerned about the pollution of our ocean. We are in a high population area, and there is a lot of opportunity to dump sewage, et cetera, into the ocean. We are vitally concerned about it.

What seems to be happening here is that we are going beyond the trimming of the fat, even though your aspiration for efficiency is an admirable one. I see some very painful cuts taking place here.

Do you agree with that?

Mr. **Byrne**. I think we would have to go almost topic by topic to give you a better assessment of that. We think that the time has come for all of us to spend more time working together, and that involves industry, the States, and the universities, and so on, and by doing this, I think we do accomplish some efficiencies in using all of the talents available to us.

In making the reductions in the budget, we have attempted to maintain those programs which we regard as being essential Federal programs. We have attempted to identify programs which might possibly be funded through user fees, and we are presently in an effort to identify those programs which could be contracted out to the private sector, to universities and to others, in order to assure that the programs are carried out, but not necessarily through the Federal agency.

Senator **Lautenberg**. You are talking about some of the user's fees for maps, charts, and that sort of thing.

Mr. **Byrne**. Yes, sir.

Senator **Lautenberg**. Thank you very much, Mr. Chairman.

The **Chairman**. Senator Trible?

Senator **Trible**. Thank you, Mr. Chairman.

Good morning, Mr. Byrne. A couple of questions.

Tell me, if you will, what funds are now being dedicated in this fiscal year and what funds are contemplated in the next fiscal year for ocean research, and then spell out for me, if you will, the kinds of ocean research activities funded.

Mr. **Byrne**. That is the sort of question I prefer to provide something for the record on, so that we get the facts right. I do not have off the top of my head the exact numbers. I am sure that we can dig them out. I am sure my colleagues may be better able to respond in detail to that question than I can.

In general, the activities involve processes which would be important in understanding pollution and ocean dumping. They involve activities involving the monitoring of the ocean, not only in terms of the actual monitoring, but in developing techniques for the remote sensing of the ocean, and so on.

But I would be pleased to provide for the record the details that you have requested.

Senator **Trible**. All right, sir, if you would do that, and not only provide that information for the record of this committee, but also provide me with a copy of your response.

Mr. **Byrne**. Absolutely.

Senator **Trible**. And moreover, for the record, if you will, I would like you to compare that level of funding with the funding provided by some of the other nations of the world, for instance Japan and some other nations involved in oceans research.

Mr. **Byrne**. To the extent that we can get that information, we will be pleased to do so.

Senator **Trible**. All right, sir. Let me move to some other subjects.

In terms of the marine sanctuaries program, what is done to assure that local governments have sufficient input in this process?

Mr. **Byrne**. I think that the marine sanctuaries program has gone through an evolution. In our most recent phase, we have developed a technique in which we use eight regional committees, depending on the area around the coast, involving scientists, involving State employees where they are appropriate, and involving representatives from industry to identify potential. I must underline potential sanctuary areas.

These potential areas go through a series of local reviews that provide opportunity for local comment. They are then submitted, after the comment period, to NOAA. We review them. They are put on what is called the site evaluation list. The site evaluation list will then be published in the Federal Register. It is my understanding that it has been submitted to the Federal Register and should, if it is not already, be out within days. There is then a 90-day comment period, simply to obtain information with respect to the sites which are listed.

Then, on the basis of the comments, we will actually propose a number of sites. And so, I think there is ample opportunity for comment and for interaction, not only with local governments, but with private citizens or anyone who has an interest in the designation of sanctuaries.

Senator **Trible**. With the exception of a general invitation for a response, are there any specific procedures to seek the advice and counsel of local governments? And if so——

Mr. **Byrne**. May I ask Mr. Tweedt, who is responsible for that program——

Senator **Trible**. Anybody who can provide an answer.

Mr. **Tweedt**. The site evaluation list is, in effect, a shopping list to give everyone an indication of what sites could possibly become marine sanctuaries. There are 29 sites on that list. The list we anticipate will take from 5 to 10 years to work through the process.

As a site is selected as a candidate, it will then go through a lengthy process that will involve an environmental impact statement. It will involve economic analysis, and all through that process, not only local government, but industry and the general public will, I believe, have ample opportunity to comment.

Senator **Trible**. Is there any formal consultation with the appropriate regional fishery management councils?

Mr. **Tweedt**. Yes, there would be, and they are also contacted in establishing the initial site evaluation list. The eight teams that Dr. Byrne referred to are based roughly on the Fishery Management Council geographic areas.

Senator **Trible**. Let me switch very quickly to another subject, Mr. Byrne, as my time elapses here, about coastal zone management grants.

May I have an additional minute, Mr. Chairman?

The **Chairman**. Go ahead.

Senator **Trible**. The funding of coastal zone management is uncertain at this point, although I anticipate Congress will provide some additional money not requested by the administration. In that regard, let me simply make the point very quickly that Virginia's program is not now federally approved.

We do have a program in place, or fragments of a program. A submission will be made to your agency this spring or midsummer, and it would be my hope that NOAA would review Virginia's submission as quickly as possible. If the Virginia program appears to meet Federal standards, then NOAA might reserve some of that fiscal year 1984 grant funding for the Commonwealth.

With that, I yield back, and thank the chairman for his indulgence.

Mr. **Byrne**. We have heard your comment.

Senator **Trible**. Thank you.

The **Chairman**. Senator Stevens?

Senator **Stevens**. Thank you, Mr. Chairman.

My questions will be very short. I will have to go to the floor. I would ask that you submit these questions to the Western Oil & Gas Association when they come in.

Dr. Byrne, you have been doing a great job. We all know that. And you are a very capable Administrator who understands the budget process. And we read between the lines that the budget process has worked its will in your area of Government.

I really do wish that you would convey the committee's protest against the sea grant decision, because it really is a double cut in the area of the oceans. I agree with the chairman. The States just will not continue the sea grant program. What that means is, if you cut out the Federal money, you cut out the State money, and it is a double whack. I think that the sea grant program should have been the last one to be reduced.

I have two questions. One pertains to this same issue that Senator Trible has been talking about. I do not know if you are familiar with the complete flap we had in Alaska over the sanctuaries program, and it seemed to me that it came about because the very first base was not covered. I do not think anyone ever bothered to talk to the State about the program prior to making up this list and starting off on the sketch, as you call it, of the whole concept of marine sanctuaries.

Why should not the first step be to sit down with the people of the State and say, we are thinking about designating a sanctuary off your shores?

Mr. **Byrne**. I think that is one of the early steps, and it should be included, and we would not point to the Alaska situation with any pride, but recognize that it was not handled well, and as a result, has been withdrawn from the list. We regret what has happened. We think the areas around Alaska do include possible locations for valuable marine sanctuaries.

Senator **Stevens**. My State budget is probably 40 times yours in dealing with this subject, protection of the marine environment, and yet the Federal people take it upon themselves to come to the State, make an announcement and say, "we are going to protect portions of Alaska against Alaska." That is the way it was viewed.

Now, do not misunderstand me. I know that was not your intention, but that is the way it was viewed. I just cannot believe that the same thing is not going to happen in other areas of the country if we do not require that the first step be to consult with the people of the area.

I think Senator Trible was right that not only the State but the regional council ought to be involved in the process of putting areas on the list. Not of talking about the list once it is done, Dr. Byrne, but in putting areas on the list. Could we not do that? Or do we have to write it into the legislation?

Mr. **Byrne**. I would like Mr. Tweedt to comment on that. He was directly involved with the Alaska situation.

Mr. **Tweedt**. Senator, one of the first things that was done in all areas was to establish a State liaison, but unfortunately, the liaison was not as broad as it might have been, because it only dealt with the Office of Coastal Zone Management, and I think that was perhaps one of the first mistakes. We should have established a broader liaison within the State.

Senator **Stevens**. In other areas, including Alaska and California, the reaction to marine sanctuaries comes from not only oil and gas but the commercial fishermen.

Mr. **Tweedt**. Yes, sir. I think our bigger problems were really twofold. One, there was really no explanation given of what the sanctuary program was all about, and second, we did a poor job of gathering mailing lists of groups and people to submit comments to. As a matter of fact, our mailing list in Alaska, we really did not have an effective mailing list until late in the ball game, we consulted with the Alaska delegation, and your own staff was very helpful to us in that regard, but that was very late.

Senator **Stevens**. Well, I would like to insure that the process require consultation with the State, prior to developing or selecting areas for the site evaluation list. I think that should be done.

Let me ask another question, Dr. Byrne. We understand that NOAA is going to delete some of the research programs on the west coast, and I am told that the sulfide deposit research or the polymetallic sulfides will be deleted. Why is that?

Mr. **Byrne**. The history of our research in polymetallic sulfides, I think for the first several years we operated that under our national ocean service budget. This year, we are operating at $800,000 for research in that area. During the year, we are carrying out a number of studies of interest in polymetallic sulfides, and there is no question that there is considerable scientific interest in the program.

On the other hand, in our solicitation of comments from industry, the indication we received was, yes, this is something we are interested in, but it really looks far down the track to us, and in terms of mining activities and mining potential in the near to intermediate future, we do not really see the possibility here.

We will watch with interest, of course, what research is carried out in this area. In attempting to create some efficiencies in the budget, we took these comments into consideration, and recognized that we will continue some activities in polymetallic sulfide research, but it is not as high priority with respect to the mining capability as it appeared to be even a year ago.

That was one of the justifications for reducing this portion of the NOAA budget.

Senator **Stevens**. Well, is there not a corollary that, if the industry puts polymetallic research into long-term planning and the Federal Government puts it off, we are just going to slip out of that type of research?

Mr. **Byrne**. I think that might be the case for some topics of research, but the activity, the action, the science involved with the regions in which the polymetallic sulfides are formed is of such significant interest in a variety of areas, not just for the sulfide deposits themselves, but in terms of a number of Earth science processes, and biological processes. These are the areas of the hot springs and very exotic organisms where research will continue, but will not receive the sharp focus that we have continued on the mining aspects, the mineral genesis aspects.

Senator **Stevens**. My time is up.

The **Chairman**. Thank you, Ted.

John, who is going to do the research?

Mr. **Byrne**. The research being done in this area is being done through universities. It is being done by the U.S. Geological Survey. Some research by the Bureau of Mines. Some is supported by the Office of Naval Research.

The **Chairman**. Are you suggesting then that if NOAA ceases all of this research, the research will go on? Or are you suggesting that the potential for commercial development is so far in the future that there is no immediate need for the research?

Mr. **Byrne**. I think what I am suggesting is that NOAA will reduce the level of activity which we had anticipated even a year ago. The research will go on within NOAA, and also in other areas, but at a reduced level. And probably with a change in focus.

The **Chairman**. So you do not expect business to do the research?

Mr. **Byrne**. On the basis of the comments that we have received, no, I really do not. That is my own personal opinion.

The **Chairman**. If business is not going to do the basic research, then how are they going to know what the potential is, if we reduce even the basic research that we are doing now? And despite what you say about NOAA continuing research at a reduced rate, there is going to be even less done under the suggested budget than we are doing now. I mean, there has to be.

Mr. **Byrne**. Yes, that is true. I do not think there is any question about that. I think it needs to be put in context with all of the other research that is going on in this area by other agencies, however. This involves primarily the Geological Survey, the Bureau of Mines, and also the university research, which is supported, my recollection tells me, three to four times higher through the National Science Foundation than the level of research within NOAA.

So, there will be a substantial amount of research which continues in these areas of sulfide deposit formation.

The **Chairman**. Well, I think the Federal Government has got some legitimate functions to perform. You are going to take out the sea grant program and hope the universities pick it up. Now you are going to take out polymetallic research and hope the universities pick it up. Then we are going to get out of a variety of other programs and hope that business or the States or somebody picks them up.

And not all the programs are going to be picked up. You are going to force the States to make priority decisions. And where we are dropping programs, they are going to drop programs, and we are going to end up with no research. We will come into, 5 or 6 or 10 years from now, a critical shortage of some important mineral, and we will look back in retrospect and find that that mineral indeed exists in significant quantities on the ocean floor.

And we will say, why did we not do something about it, much as we said about oil 10 years ago, or we say it now.

I do not think this committee is going to agree with the administration on many of its recommendations in your area. I understand the position that you have got to take. Having known you before you accepted this position, my hunch is that you have little heart for some of these budget cuts. But I will not push you on that. I understand the situation that you are in.

I think I can say assuredly that this committee is not likely to go along with most of the budget cuts in the areas that are proposed by the administration.

Now, let us go back to the sanctuary program. Is there any other Federal program or many State programs that duplicate the sanctuary program?

Mr. BYRNE. Peter, would you comment on that?

Mr. TWEEDT. Several States have underwater parks and preserves that are similar, Senator.

The CHAIRMAN. Several States?

Mr. TWEEDT. I am from California, and I am intimately familiar with our system. Park Lobos Preserve near Monterey is sort of analogous to a sanctuary. There are underwater parks in southern California.

The CHAIRMAN. Is the marine sanctuary program being reduced?

Mr. TWEEDT. No, sir. We have asked for reauthorization of the program.

The CHAIRMAN. Run by me again the changes that have occurred in the site designation process.

Mr. TWEEDT. The SEL superseded a previous system——

The CHAIRMAN. SEL?

Mr. TWEEDT. Site evaluation list. Excuse me. Replaced the previous system, which was the initial way that the sanctuary program started out. Under that system, anyone could nominate any kind of an area as a sanctuary, individual, Governor, organization. One of the things that happened is, we got a rather unwieldy group of sites. We had some 79 sites nominated. Some were extremely large, the entire Gulf of Alaska as an example.

The SEL sought to bring some predictability to the system, so that a list could be established that industry, fishermen, environmentalists could look at and, say, in the next 5 to 10 years, these certain sites may become candidates for inclusion.

The CHAIRMAN. Who submits the sites now, the suggestions of the sites?

Mr. TWEEDT. The SEL was established by teams of scientists from eight regions.

The CHAIRMAN. And those are the only sites that are submitted?

Mr. TWEEDT. Yes.

The CHAIRMAN. For your review?

Mr. TWEEDT. Yes. They base their studies on sites that they thought had unique environmental qualities that would lend themselves to a marine sanctuary. Each of the regions came up with not more than five sites. The Alaska region was terminated, so we have just published in the Federal Register 29 sites from the other 7 regions.

The CHAIRMAN. Senator Lautenberg?

Senator LAUTENBERG. Dr. Byrne, based on the questioning of the chairman, I got to learn a little bit more about what your personal attitude probably is on these cuts, though I think support of the cutbacks is obviously going to impair some of the very important programs that are undertaken by NOAA.

And what I was trying to get at before was to see whether or not you felt there was any impairment of the efficacy of these programs, or whether you were satisfied that at these reduced levels, you could carry on to the full extent of the obligations as you saw them as a scientist, as a professional in the field—OK. Let us pass that. Your smile tells me just what I wanted to hear.

The CHAIRMAN. I want the record to note that smile.

Senator LAUTENBERG. I do, too. I wish we had video on it.

Mr. BYRNE. The smile was simply my inability to give you an adequate response.

Senator LAUTENBERG. How about an emotional response?

Mr. BYRNE. Well, the matter of research is an open-ended thing, and when you say, can we carry out to our obligation, I think that we can. We can maintain a very lean program which benefits the country, which——

Senator LAUTENBERG. Long run? Longrun benefits?

Mr. BYRNE. Within the long run, which also reflects the rather extreme financial situation the country is faced with.

On the other hand, in looking at it as a researcher, there are few people who would argue that there will never be questions to be answered, and I think any scientist would indicate that probably more questions result from research than answers, and so that is the reason for the smile. It is a difficult question to answer, really.

The answer from a scientific point of view is, no, there will never be enough time or money or effort to solve the questions, because we will always come up with more questions than answers.

On the other hand, from my position as Administrator of the National Oceanic and Atmospheric Administration, I believe that we can carry out the activities which our agency is responsible for in a responsible way with a reduced budget.

Senator LAUTENBERG. Provided there is a transfer of these activities to the States and other supporters can pick up some of the slack.

Mr. BYRNE. We require at this time the total use of the talents and resources available within the United States, within the States and private sector as well.

Senator LAUTENBERG. Well, I do not have to speak for all of the States, but I know that our State is so hard-pressed fulfilling its budgetary obligations that the places that are going to be affected are those that are least pressing on the current basis. The cuts will be painful in the out years.

Do you think there would be an impact on coastal zone management programs if the federal funding for coastal zone programs is eliminated? It is realistic, I think, to believe that the States cannot support much of this activity. Do you see a significant impact as a result of cutting back on the funding?

Mr. BYRNE. In the area of coastal zone management, I really do not. I think that, answering very honestly, as I did, I think, earlier, it would be our best wish to have all of the coastal States with an approved or federally approved coastal plan, and it is regrettable that all of the States are not under such approved plans.

On the other hand, we are not eliminating the coastal zone management program, but rather we see the nature of its activities changing to one which involves the Federal oversight, the Federal support, if you will, of those approved plans, particularly as it pertains to the impact under Federal consistency provisions to insure that these plans which have been developed under, I think, considerable wisdom are maintained and that the coastal zones of the United States are preserved, using them wisely to the extent that the plans allowed.

Senator LAUTENBERG. There is a substantial cut, however, coming in that activity, in terms of the funding.

Mr. BYRNE. I think the major reduction is the elimination of the grants to the States program, which is something that has been evolving over the past several years.

Senator LAUTENBERG. Thank you.

The CHAIRMAN. I am going to ask Senator Trible to preside until Senator Gorton arrives. I hope to be back soon. I will be testifying shortly after 10 a.m. if the committee starts on time. But I would not, as far as this committee is concerned, plan on operating on the reduced budget that you have suggested.

Mr. BYRNE. Thank you.

Senator TRIBLE [presiding]. I have no further questions to pose at this time.

We thank you very much for being here.

Mr. BYRNE. Thank you.

[The statement follows:]

STATEMENT OF HON. JOHN V. BYRNE, ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Mr. Chairman and Members of the Committee, I appreciate the opportunity to appear before you today to discuss the ocean and coastal programs of the National Oceanic and Atmospheric Administration (NOAA).

I will confine my oral remarks to a few ocean and coastal resource issues and then be glad to respond to your questions in detail on the basis of the full text I provided earlier.

OCEAN AND COASTAL RESOURCES MANAGEMENT

The following programs form the cornerstone of NOAA's responsibility for ocean and coastal resource management: (1) coastal zone management; (2) coastal energy impact program; (3) estuarine sanctuary program; (4) marine sanctuary program; (5) ocean thermal energy conversion; and (6) deep seabed mining.

Coastal Zone Management and Coastal Energy Impact Program.—The Coastal Zone Management Act of 1972 (CZMA) authorized the first national program to promote wise use and protection of coastal land and water resources. The CZMA provides policy guidance, and technical assistance to coastal state and territorial governments to help them establish and maintain coastal zone management programs that meet Federal objectives. CZMA amendments in 1976 and 1978 added the Coastal Energy Impact Program (CEIP) designed to assist states and territories financially in planning for and mitigating the impact of offshore oil and gas development and other coastal energy activity.

The 1980 amendments to the CZMA identified nine matters of national interest which states and territories must address in their management programs and in which they must continually make program improvements. These are: protection of natural resources; management of coastal development to avoid construction in fragile or hazardous areas; priority consideration for coastal-dependent users and energy facility siting; public shorefront access; assistance in the redevelopment of urban waterfronts and ports; coordination and simplification of governmental procedures to ensure expedited governmental decisionmaking; consultation and coordination with Federal agencies; public participation in coastal decisionmaking; and comprehensive planning, conservation and management of living marine resources.

Eighty-percent Federal, twenty-percent state matching funds have been provided to each eligible coastal state or territory for up to four years for its coastal management program. All 35 eligible coastal states and territories have received these program development funds. When a program has been approved by NOAA, the state or territory is eligible for program administration grants on the same basis. Twenty-eight coastal states and territories, with over 90 percent of the U.S. coastline, are now implementing Federally-approved programs.

Based on the success of the program and the need for fiscal restraint, the Administration began phasing out Federal financial support to state coastal management programs in fiscal year 1981. We are currently in the process of awarding remaining funds for the phaseout of Section 308 (CEIP) programs. We are allocating an additional $7.17 million in program implementation awards to the newly-approved state programs of New York and New Hampshire and for states and territories with critical needs.

Based on the phaseout of Federal funding, OCRM is shifting its primary attention to policy coordination and technical assistance to coastal states and territories. The initial focus will be on permit simplification, special area management planning, coastal hazards and cost-effective coastal management.

National Estuarine Sanctuary Program.—Section 315 of the CZMA provides 50 percent matching grants to states to acquire and manage estuarine sites for purposes of resource protection, ecological research and education. Fifteen estuarine sanctuaries have been established since 1974. Eight estuarine sanctuaries have draft management plans in place and final management plans will be submitted by the end of fiscal year 1983 for all fifteen.

There are nine national estuarine sanctuaries with ongoing estuarine programs. We are evaluating two additional sites for the establishment in fiscal year 1983. This will bring the total number of sites to seventeen. We will continue to provide for the maintenance of these sites.

Marine sanctuaries

Approximately two years ago, our agency appeared before this Committee to discuss reauthorization of Title III of the Marine Protection, Research, and Sanctuaries Act of 1972. In the past two years we have taken major steps to refine the operational aspects of the program, implement management of existing sanctuaries and evaluate proposed additions to the national system.

Development of a management plan has become an integral part of the sanctuary designation process. All three proposed sanctuaries—in Puerto Rico, Hawaii and American Samoa—are being prepared in this manner, and substantial progress has been made in creating management plans for six already designated sites. This approach gives local and state interests a greater role, earlier in the process, in analyzing the full range of sanctuary issues. It also provides for a more complete study of the implications of sanctuary designation, thereby allowing the public to assess potential costs and benefits. It further ensures that management for the site will begin at the time of designation and not languish for a year or more while a management plan is being completed. While this procedure has added nearly a full year to the designation process, we feel it is well worth the delay because of the increased opportunity for public involvement, and full discussion prior to designation, of all aspects of sanctuary operation.

The other key change is the elimination of the List of Recommended Areas (LRA) and its replacement with the Site Evaluation List (SEL). The LRA was a means of advising the public of recommended sites, cataloging potentially significant sites, and soliciting information on those sites. But LRA criteria were too broad and allowed too many marginal nominations to qualify for further consideration. That generated a lot of unnecessary controversy over the program as a whole, especially when huge areas like the Gulf of Alaska, Georges Bank and Puget Sound were recommended to the list. The LRA came falsely to be perceived as the blueprint for the national marine sanctuary program, instead of a mere sketch.

We are now in the final stages of implementing the SEL process and have prepared a proposed list of sites to be published in the Federal Register and distributed to our mailing list. The SEL process entailed establishment of eight regional teams, roughly delineated along the boundaries of the regional Fishery Management Councils, e.g. Western Pacific, Eastern Pacific, Alaska, Gulf of Mexico, South Atlantic, North Atlantic, Great Lakes and Caribbean. Each team consisted of between two and four scientists with research experience in the marine resources of their region. Their task was to identify and evaluate marine sites in accordance with site identification criteria and to recommend to NOAA which sites had potential as marine sanctuaries based upon scale, natural resource values, potential environmental threats, existing uses and a range of socio-economic considerations.

In February 1982 NOAA contracted with Chelsea International Corporation to organize and oversee the preliminary stages of the SEL process. On April 22, 1982, I sent a letter to the Governors of coastal states explaining the process and requesting a liaison at the state level. This was followed by meetings, with the state liaison and leaders of key user-groups.

State liaisons, coastal zone management contacts, team members and a board range of national groups were solicited for names. Initial mailing lists were drafted and sent to State liaison and CZM offices for review and comment. We attempted to insure that the final mailing lists included appropriate individuals, groups and government agencies.

Each of the eight teams met in early 1982 and identified potential marine sanctuary sites. Descriptions of each were prepared and sent to those on the mailing list, local organizations and Federal agencies for a 45-day comment and review period. Reviewers were also provided with 75 days in which to submit additional nominations. Public information meetings were held by NOAA staff, team members and Chelsea upon request. There was a second round of team meetings and finally, in mid-February 1983, the regional teams recommended a maximum of five sites per region to NOAA. Based on public review and comment, and recommendations by the regional teams, NOAA has established a proposed site evaluation list which will be subject to a 90-day public review.

This rigorous process has been quite successful. Sites on NOAA's proposed SEL are a vast improvement over the LRA. Ecological resource values are documented more thoroughly, sizes of sites are smaller than most on the LRA, more public interaction has occurred, no site appears in State waters where the Governor objects to placement on the list and, in several instances, gubernatorial support has been expressly stated.

Some problems were encountered: mailing lists did not include all those interested in the process, and gross misconceptions of the intent of the SEL process were evident in some regions, where it was not made clear to the public that sites were being proposed for future evaluation, not final designation. This was especially so in Alaska, where the SEL process has been suspended for at least several years.

In general, we believe that program refinements instituted during the last two years have been successful in providing a more positive, predictable path for future sanctuary designations. We are working to minimize the controversy that sometimes attends sanctuary designations. We have tried to balance various conflicting interests while bearing in mind the basic mission given us by the Congress. On balance, I think we have done a good job in fulfilling the intent of the law.

The Administration, therefore, supports reauthorization of Title III of the Marine Protection, Research, and Sanctuaries Act of 1972 for fiscal years 1984-1986 at a level of such sums as may be necessary.

Ocean Thermal Energy Conversion Act of 1980

The Ocean Thermal Energy Conversion (OTEC) Act of 1980 (Public Law 96-320) assigned NOAA responsibility for establishing and maintaining a legal regime that will permit and encourage the development of a commercial ocean thermal energy conversion—or OTEC—industry. NOAA has established the required legal regime, and is continuing to exercise its responsibilities under the Act.

NOAA issued final regulations governing the issuance of commercial OTEC licenses on July 31, 1981, just prior to the deadline called for in the Act. At the same time, although it was not specifically required by the Act, NOAA issued an impact statement describing the potential environmental impacts of construction and operation of commercial OTEC plants in the United States. NOAA also published technical guidance to help those who will be preparing license applications and supporting documents to understand what kinds of environmental information will be necessary.

As required by section 107 of the Act, NOAA prepared and submitted to the Congress a five-year plan for a program to assess environmental effects of OTEC facilities and plantships. Work on the priority portions of that plan began in fiscal year 1982.

The first annual report required by section 405 of the Act was submitted to the Congress in February 1982. The second annual report, covering activities during fiscal year 1982, is being completed now.

NOAA's implementation of its responsibilities under the OTEC Act has been carried out in full consultation with private industry, a large number of Federal and state agencies, and public interest groups. This dialogue has been very productive, and the good working relationships we have established will be invaluable as industry begins commercial OTEC operations. During the past year, NOAA has consulted with four corporations planning to build OTEC plants and preparing to file formal license applications.

Early in the process of developing regulations to govern OTEC licensing, NOAA recognized the need for regular communication among the various permitting agencies while they consider an OTEC application from industry. NOAA's final OTEC licensing regulations provide the option of a consolidated application review that will include regular working-level meetings to coordinate scheduling of agency proceedings, consolidation of public hearings, and informal consultations designed to avoid major differences in the permitting decisions made by the individual agencies. Representatives of state and local agencies whose permits will be required for the OTEC project will be invited to participate. After we have gained more experience, we may be able to offer some suggestions to streamline other Federal regulatory processes.

The five-year OTEC environmental assessment identified two research tasks of the highest priority: development of a methodology for predicting the area of water affected by an OTEC plant's water intake and discharge plumes, and a basic analysis of the potential impact of OTEC operations on commercial and recreational fisheries. We have sufficient information on these subjects; the need for continued funding is not necessary.

The President's budget proposal for fiscal year 1984 includes $470,000 for the cost of NOAA's administrative responsibilities under the OTEC Act. This funding level is adequate to allow NOAA to process OTEC license applications from private industry as they are received. We recommend reauthorization of the Act at that funding level.

Deep seabed mining

The Deep Seabed Hard Mineral Resources Act (Public Law 96-283) authorizes the Administrator of NOAA to issue to eligible U.S. applicants licenses to explore for deep seabed hard minerals and permits to mine the minerals commercially.

The Act also authorizes NOAA, in consultation with the Secretary of State and the heads of other departments and agencies, to designate as "reciprocating states" those nations which establish seabed mining programs compatible with the U.S. program and that recognize U.S. licenses and permits. Reciprocal arrangements ensure that each participating nation will recognize the rights of the others' mining enterprises.

NOAA has taken major steps to meet its obligations under the Act. In September 1981, final regulations for exploration activities were issued, as well as an impact statement and technical guidance to assist applicants in the submission of environmental data. NOAA has received ten applications from four mining consortia with U.S. company members. These applications have been found complete, thus establishing consortia priorities of right, and the processing of these applications for certification is finished except for those aspects keyed to specific sites. However, there were some overlaps among initial application areas, which are in the process of being resolved. Following resolution of minesite conflicts and amendment of applications, NOAA will issue final certifications. Preliminary work already completed will allow NOAA to proceed quickly to issue draft EIS's and propose terms, conditions and restrictions for each license. Meanwhile, NOAA is initiating development of regulations for the commercial recovery phase.

In addition to establishing a legal framework for deep seabed mining, the Act also requires NOAA to accelerate environmental assessment of the effects of exploration and commercial recovery, and we have done so as documented in a five-year plan for fiscal years 1981-1985.

Internationally, we have been participating in discussions with other nations to develop arrangements for mutual recognition of seabed mining licenses. In September, the U.S., United Kingdom, Federal Republic of Germany, and France signed an agreement on criteria for pioneer explorer recognition and for resolving conflicts among pioneer applications. Representatives of these and other mining nations (Japan, Italy, Belgium and the Netherlands) are continuing discussion of principles to govern the next generation of seabed mining agreements.

We are requesting $1.3 million in fiscal year 1984 funding for continuation of the deep seabed mining program. Reductions will not significantly affect the industry's operational schedule since more significant delays are expected due to uncertainty over the international legal regime and the state of the metal market.

Marine Protection, Research, and Sanctuaries Act, Title II.—I would like to summarize the results of NOAA's monitoring and research efforts in fiscal years 1982 and 1983 under Title II of the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 (P.L. 92-532). Section 201 of Title II assigns responsibility to the Department of Commerce for comprehensive monitoring and research on the effects of dumping material into ocean waters and the Great Lakes. Section 202 of Title II directs the Secretary of Commerce, in consultation with other agencies of the U.S. Government, to initiate a continuing program of monitoring and research with respect to the long-range effects of pollution, overfishing and anthropogenic influences on ocean ecosystems.

Since ocean disposal of dredged material, sewage effluents, sewage sludge and industrial wastes is projected to rise, this kind of information will be increasingly important for policymakers in Congress, Federal agencies, state and local governments, industry and the public.

In fiscal year 1983 the program focus is on processes related to: (1) contaminant distributions and biological effects in selected coastal regions, in the heavily used New York Bight, at a recently abandoned sewage sludge dumpsite off the mid-Atlantic Coast, and at deep ocean dumpsites; and (2) comparative studies of dispersion of pharmaceutical wastes via coastal outfalls versus barge dumping in Puerto Rico and of sewage sludge off Orange County, California.

We plan to de-emphasize research on the effects of marine pollution that is not directly related to management, and we will reduce site-specific research that is not needed for near-term Federal decisionmaking. We plan to intensify our focus on national problems since we anticipate that all coastal areas, not just the Northeast, will propose the use of the ocean for waste disposal.

In order to continue these vital efforts, we request that Title II of the Marine Protection, Research, and Sanctuaries Act be reauthorized.

National Ocean Pollution Planning Act (Public Law 95-273).—The National Ocean Pollution Planning Act directs NOAA to undertake the following activities to develop a concerted Federal ocean pollution research effort:

Section 4 requires the preparation of a comprehensive five-year plan to guide the overall Federal effort in ocean pollution research, development and monitoring.

Section 5 requires NOAA to establish a comprehensive ocean pollution research, development and monitoring program consistent with the priorities established by the national plan and including projects for which NOAA has responsibility pursuant to Title II of the Marine Protection, Research, and Sanctuaries Act.

Section 6 stipulates that a financial assistance program for research, development and monitoring be established to meet research priorities not adequately addressed by ongoing Federal programs.

Section 8 assigns NOAA the responsibility to disseminate findings generated by these programs to agencies of the Federal government and to interested members of the general public.

All of these tasks are being pursued sedulously by the designated components of NOAA.

Planning and implementation efforts under the statute involve senior representatives of twelve Federal departments and agencies conducting and supporting research, the Office of Management and Budget and the Executive Office of Science and Technology Policy. An interagency committee has been chartered under the Office of the President's Science Adviser to guide the planning effort. The Interagency Committee on Ocean Pollution Research, Development and Monitoring is chaired by NOAA's Deputy Administrator and operates under the Federal Coordinating Council for Science, Engineering and Technology. An interagency task force representing each of the Federal departments and agencies works with the National Marine Pollution Office to develop the plan and coordinate implementation.

The first Federal Plan for Ocean Pollution Research, Development and Monitoring was published in 1979. A revised and expanded version of the plan was published in 1981 and the third plan is due before Congress in September, 1985. The revised Federal Plan specifically recommends ocean waste disposal, Outer Continental Shelf environmental studies, and increased use of coal in coastal areas as priorities for action. NOAA and other Federal agencies are acting on these recommendations, including development of a strategy for conducting multi-media assessments of waste disposal, development of a research plan to study the long-term cumulative effects of hydrocarbon development on the Outer Continental Shelf, an assessment of research needs related to disposal of coal combustion wastes and dredged material from port projects, and development of a multi-agency strategy for coordinating and prioritizing basic process research.

The Ocean Pollution Data Information Network, authorized by the National Ocean Pollution Planning Act, is in the process of development by NOAA's National Oceanographic Data Center and will be fully operational by 1985.

The National Ocean Pollution Planning Act continues to provide an effective framework for identifying important marine pollution problems and coordinating the national research, development and monitoring response. The Administration recommends that this statute be reauthorized through fiscal year 1985 at a level necessary to fulfill the purpose of the Act.

Mr. Chairman, this completes my statement. I will be happy to answer any questions you or the Members of the Committee may have.

QUESTIONS OF SENATOR TRIBLE AND THE ANSWERS THERETO

MARINE RESEARCH SUPPORT

Question. What funds are provided this year and are contemplated in the next fiscal year for ocean research? (Spell out kinds of research activities that are still funded).

Answer. NOAA's marine research support for fiscal year 1983 and fiscal year 1984 are as follows:

[In thousands of dollars]

	Fiscal year 1983	Fiscal year 1984
Research activity:		
Nonliving marine resource R&D	2,322	623
Ocean climate research	7,818	10,509
Imdersea research program	3,755	
Great Lakes research	3,496	
Ocean waste disposal R&D	11.106	5,944
Ocean services research	6,870	4,964
Sea grant marine resources R&D	18,150	
Coastal zone management R&D	405	465
Nautical chart R&D	272	275
Fishery resource information R&D [1]	29,716	19,179
Fishery industry information R&D	260	260
Fishery information, analysis and dissemination R&D	6,818	5,844
Fishery grants to States R&D	5,000	
Fisheries development	5,600	1,200
Fisheries S-K grants	8,023	
Environmental satellite marine R&D	1,320	1,180
Ship support for R&D	18,999	9,739
Aircraft marine R&D	1,703	1,703
Total	131,633	61,885

[1] Fiscal year 1984 figure includes $254 or 75 percent of the dollars transferred to this line item as a result of the proposed lay-up of the fishery fleet.

Question. Compare NOAA's Level of Funding with funding provided by some of the other nations of the world, Japan, etc., in the research area.

Answer. The only other nation for which we have information on ocean research funding, is Canada. Our interpretation of that information is that in the 1981/1982 fiscal year Canada expended $63 million in ocean science research.

[The following information was subsequently received for the record:]

QUESTIONS OF SENATOR HOLLINGS AND THE ANSWERS THERETO

COASTAL ZONE MANAGEMENT

Question. In your prepared statement you say that a program development plan is being prepared for the estuarine sanctuary program, including criteria for site selection. Yet it is my understanding that the Administration budget for fiscal year 1984 provides funding only for maintenance of the 17 existing sites.

Is it your plan to resume federal funding for site acquisition in the future? If not, what will be the purpose of the site selection criteria in the program development plan?

Answer. These criteria will apply to the remaining sites to be added to the estuarine sanctuary program. Each site is limited to $250,000 of operations and management over a five-year period. The fiscal year 1984 budget includes $550,000 for operations and management awards for existing sites. Additionally, funds are also included in the fiscal year 1984 budget for complete or partial acquisition of one new site.

Question. Reportedly there are a number of Alaskan interests that have been disappointed in the outright termination of the marine sanctuary site evaluation effort.

If the Governor of Alaska should express an interest in further site evaluation for possible marine sanctuaries there, would you promptly resume your evaluation activities?

Answer. The current proposed Marine Sanctuary Site Evaluation List (SEL), which will serve the program for 5–10 years, consists of sites from seven regions only. Alaska is not included. New sites will be considered for addition to the SEL only in accordance with section 922.22 of the revised program regulations which are scheduled to appear in the Federal Register in May 1983.

Question. The Administration has proposed $2.26 million for the Marine Sanctuaries Program in fiscal year 1984. It is estimated that each site requires $0.2 million per year for management, and about $0.2 million to initiate. With the addition of 3 more sites, the nine sites will cost $1.8 million just for management and operation.

Will the proposed level of funding be sufficient to provide the research and education programs proposed at marine sanctuaries, or will the sites only be able to function as restricted areas?

Answer. The $200,000 per site is an average cost. Planning figures for fiscal year 1984 show that nine sites can be effectively managed for approximately $1.7 million, including research and education programs for each site.

Question. Despite recent changes in the Marine Sanctuaries Program, at least one member of Congress continues to oppose the program on grounds that it allows for the designation of vast coastal areas and is a threat to the fishing and oil and gas industries.

Are these justifiable arguments under the current handling of the program, and if not, how does your new approach attempt to alleviate these concerns?

Answer. Given our present operating policies and regulations, we believe these arguments are no longer valid. We have now incorporated multiple compatible use as a program goal. The recently completed site evaluation list is composed of 29 sites with no study area over 1,300 square miles. The majority of the sites include study areas less than 100 square miles. Only five of the 29 sites are in areas of potential oil and gas development. When any of these sites are selected from the SEL for further consideration as a national marine sanctuary, any issues that may arise during the lengthy designation process regarding oil, gas, and fishing will be carefully coordinated with the appropriate management authorities and industries.

NON-LIVING-MARINE RESOURCES

Question. The Ocean Thermal Energy Conversion Act was intended to facilitate the development of OTEC enterprises through a "one-stop" licensing procedure.

Has NOAA found the language of the Act completely satisfactory for achieving this objective? If not, what difficulties have been identified?

Answer. NOAA has found the language of the OTEC Act basically satisfactory for achieving the "one stop" licensing procedure intended by the Congress. The Act does need some clarification of the regulatory status of land-based OTEC facilities, and we have identified several technical discrepancies in Section 101(c) of the Act. Sections 2 and 4 of H.R. 1381 contain amendments that address these matters and NOAA recently testified in support of that bill.

Question. The Administration proposes that funding for background research related to decisions on OTEC applicants can be reduced because the applicants are required to submit extensive impact information. This suggests that NOAA will be ill-equipped to judge the problems associated with a given OTEC project. Without the independent background information, how can NOAA guard the public interest in carrying out its licensing functions?

Answer. NOAA began research studies on the two highest priority background research questions in fiscal year 1982, and those studies will be completed with the information necessary to make licensing decisions for small OTEC plants. The licensing regulations require licensing applicants to provide NOAA with the site-specific environmental data and analyses needed for preparation of a design and site-specific EIS, and NOAA's OTEC environmental assessments efforts will turn to examination of this data at the end of fiscal year 1983.

Question. Presently NOAA is conducting two research efforts directed at the possible environmental effects of OTEC plants, both concerning heated thermal plumes from the plant site.

Are other environmental problems anticipated from the various OTEC configurations? If so, what are they and can we count on the industry to investigate them?

Answer. The research efforts currently being conducted by NOAA involve all aspects of the discharge plumes from an OTEC plant, including the presence of biocides such as chlorine (used to keep the heat exchangers clean), metal ions from corrosion, and water properties (temperature, density, nutrients, and chemical composition) different from the ambient water at the discharge location. Fish attraction to OTEC platforms is also included in one of the studies.

These matters cover the significant environmental impacts anticipated from small OTEC plants. A number of other potential environmental impacts, such as release of carbon dioxide and other dissolved gases from the cold, deep water were identified in NOAA's 5-year environmental research plan and our programmatic EIS, but they are not expected to be significant for small plants. NOAA's strategy for these other potential impacts is to receive monitoring data from licenses of initial small OTEC plants (which they are required to provide by Section 110 of the OTEC Act), and to make extrapolations from the monitoring data to determine whether any of these potential impacts may become significant at larger plant sites.

Question. Your resource evaluation program for polymetallic sulfides on the Gorda-Juan de Fuca Ridge system consists of 4 parts: (1) acoustic and photographic mapping of the area, (2) detailed studies of 5 specific sites, (3) recovery of samples by dredging and using a submersible, and (4) geographical analysis of mineral and rock samples.

If the Congress accepts your recommendation to discontinue this work at the close of fiscal year 1983, how much of the original resource evalution program will have been left undone by NOAA?

Answer. Our original plan had been to carry out a five-year research program to obtain the scientific and legal information necessary to assess the potential commercial opportunity and strategic significance of marine polymetallic sulfides while at the same time addressing the fundamental research aspects of the process of metallogenesis and new concepts of life evolution. Based upon one year support for the five year program, approximately 80 percent will have been left alone. However, based on the uncertainties associated with the Law of the Sea Treaty and the present status of the minerals market, the urgency to proceed with this program no longer exists for fiscal year 1984.

Question. In your prepared statement you say that the U.S. Geological Survey budget estimate included fiscal year 1984 funding for polymetallic sulfide research.

How much funding is proposed? And what activities would USCG [sic] be able to carry out with that money?

Answer. It is our understanding that the Office of Energy and Marine Programs of the U.S. Geological Survey have requested one million dollars (including cost of ship operations) for polymetallic sulfide research in fiscal year 1984. It is also our understanding that their activities will be confined to the southern portion of the Juan de Fuca Ridge, where, during 30 days at sea, they will take photographs and obtain samples of the sea floor rocks and minerals to be followed by geological study and analyses.

Question. You mention the idea of regional Ocean Service Centers.

(a) How many of these centers do you envision?

(b) Where would they be located?

(c) What kind of staffing do you foresee for each such center?

(d) How would such a center retrieve and disseminate information for users? Please explain in detail.

(e) What do you mean when you say the centers will be established "within available resources"? Does this suggest fiscal year 1984 reprogramming from other activities? If so, how much money might be involved?

Answer. (a) We presently are planning to establish a prototype center in Seattle, Washington. This center should be established by the end of fiscal year 1983. The total number of such centers has not been determined.

(b) The centers would be located in major coastal areas.

(c) The prototype center will employ about 20 people.

(d) The centers will be comprised of people from all of the Line Offices (Fisheries, National Weather Service, etc.). From these centers, a variety of NOAA-wide services will be available—from satellite charts to fishery management plans. The final list of services will be provided to Congress upon completion of our internal plans.

(e) Reprogramming would be required to implement these centers. We estimate that the cost for the prototype will be less than $500K.

Question. In your prepared testimony you indicate that NOAA is preparing to respond to requirements for the production of electronic aeronautical charts.

Do you envision such electronic charts being called up on aircraft control panel displays? What kind of preparations are you taking for this prospect? Isn't this the sort of value-added product that the private sector should perform?

Answer. Development of prototypes such as film strips, digital cartridges, and systems for digital updates of these products anticipate the future use of electronically displayed data in both aircraft and ships. These are natural sequels to present activities of developing and maintaining sophisticated digital data bases to enhance existing chart production processes. Current outputs of our data bases are designed to efficiently drive reproduction equipment and to permit the cartographers to present data accurately. In the future, the output from our data bases will also be used by the users and managers of the National Airpace System in improved highly developed technological equipment. This equipment will be commercially produced by the private sector. We will continue to provide digital data in specialized formats required for the National Airspace System in lieu of current hard copy printed formats. The private sector can access the digital data base and produce value-added products needed by the commerical industry.

Question. On what basis was it decided that the fishery research fleet should be deactivated in fiscal year 1984?

Did the agency conduct a study comparing research costs for chartered fishing vessels with those for the NOAA vessels? If so, please furnish a copy of the study promptly; this was specifically requested on February 3 and has not yet been provided. If not, please explain exactly and in detail how such a serious decision was reached.

Answer. While no overall study has been conducted, our previous experience with chartering indicates there is evidence for potentially significant savings from the use of chartered vessels. In fiscal year 1982, NMFS spent approximately $1,641K to provide 576 days of chartered ship support for research activities. This level of expenditure was about the same as fiscal year 1981 and is projected to be the same in fiscal year 1983. The average cost was approximately $2,850 per vessel day. This average rate compares with the estimated cost of $5,000-$7,000 per vessel day for the NOAA research vessels. While NOAA and commercially chartered fishery vessels are not always interchangeable, the average cost differences indicate potentially significant savings from a shift to chartered vessels even if demand for research ship support stayed constant.

Further, savings are also possible as a result of proposed budget reductions in other fisheries programs. This elimination of lower priority research will lower the demand for total research ship support time.

Question. I understand that a recent internal study of NOAA laboratories gave very high marks to the Great Lakes Environmental Research Laboratory and that only a few months ago you congratulated GLERL on its excellent performance.

Is my understanding correct? If so, why are you proposing that GLERL be shut down in fiscal year 1984?

Answer. Yes. I was very impressed with the excellence of the research and the people assembled in GLERL. The quality of the GLERL research is not in question. The Administration's position is that the physical and ecological state of the Great Lakes are a state and regional responsibility.

Question. Do you expect the nearly bankrupt State of Michigan to hire the personnel and keep the laboratory's excellent work going?

Answer. Most economic indicators point to an upturn in the economy through the remaining months of fiscal year 1983 and into fiscal year 1984. By fiscal year 1984, when this transfer is proposed, the state of Michigan should be back to a more normal economy and able to consider the contribution of GLERL among its other priorities in their budget process.

Question. The Great Lakes Environmental Laboratory performs work of importance in our international relations with Canada and in the nationally vital shipping on the Lakes.

In light of this, why does the NOAA budget seem to argue that GLERL provides research simply of benefit to Lakes states?

Answer. While it is true that certain activities carried out by GLERL contribute to joint U.S.-Canadian efforts on the Great Lakes and likewise to the resolution of winter ice and water level problems affecting shipping, that does not change the fact that most of the GLERL operations are oriented toward problems confronting a particular state or group of states.

Question. The nautical charts issued by NOAA have an obvious safety value for both the chart user and for those who share the waterways with chart users. When mariners go sailing without an adequate, up-to-date chart, they are not only jeopardizing themselves and their passengers but everyone else on the water as well (including those who have spent the money for a new NOAA chart).

In your decision to increase user charges for nautical charts, what importance have you placed on the public safety implications of the increased charges? What means have you developed to keep track of the effect of decreased chart use on navigational safety?

Answer. Public safety implications of increasing nautical chart prices has been one of the major considerations in developing the increased user fee strategy for NOAA's charting programs. A balance between assuring the widest possible distribution of the Nautical Chart products and placing the responsibility of funding on the special beneficiaries must be maintained. The fiscal year 1984 proposal to phase in increased chart prices over a 5-year period allows NOAA to carefully monitor changes in chart sales volume and make running modifications to the plan in order to preserve the required balance between wide distribution and program self-sufficiency.

To track the effect of decreased chart use on navigational safety of vessels under 1,600 gross tons, we will review accident statistics in the Coast Guard's annual publication entitled "Boating Statistics" and correlate these statistics with chart sales volume.

Vessels over 1,600 gross tons are bound by Code of Federal Regulations, Title 33, Part 164, Sections 30 and 33, which requires that an up-to-date suite of charts be aboard for the operational areas, and therefore, decreased chart use by these users is not anticipated regardless of cost.

Question. You indicate that around 40 percent of the current Sea Grant program is supported by non-Federal funds.

Are you aware of any state governments or other entities with the financial ability to provide additional fundng for Sea Grant? If so, which entities have indicated a desire to provide such funds and how much are they willing to supply?

Answer. Even though most state governmments are experiencing financial problems similar to those of the Federal Government, some should be able to provide additional funding for Sea Grant, particularly if the states are convinced that the program has helped the state and regional economy. However, so long as the Federal government continues to provide funds for Sea Grant, we never will know exactly how much funding states, universities, localities and industry will actually be willing to provide. If the benefits of Sea Grant are anywhere near as great as we believe them to be, we suspect that the non-Federal level of funding will be substantial.

Question. Isn't it true that the withdrawal of Federal funding will probably result in the break-up of the current national network of Sea Grant institutions and activities, since the largest programs are the only ones likely to survive the 60 percent loss in funds?

Answer. It is possible that some Sea Grant programs may not survive the withdrawal of Federal funding. There is no way of determining in advance whether the network will break-up. Preservation will depend on the willingness of the states and private sector entities to demonstrate their commitment to benefits derived from the program.

QUESTIONS OF SENATOR RIEGLE AND THE ANSWERS THERETO

OCEAN AND COASTAL PROGRAMS

Question. I understand that NOAA conducted an in-house survey, headed by Eric Schneider, of all NOAA facilities and that the Great Lakes Laboratory emerged as one of your best operations.

Is it possible to obtain this survey? Further, is it correct that this survey did indicate that GLERL is one of your best operations.

Answer. Eric Schneider did conduct an internal NOAA survey of Marine Pollution programs including GLERL. A copy of this report is available. The survey concluded that GLERL pollution-related research was excellent.

Question. I would like to obtain your best assessment of possible private or state funding sources, including amounts that might be expected from each party in the event that federal support for GLERL is terminated.

Answer. We cannot identify specific alternative sources of funding; however, there is confidence on the part of the Administration that, at least for those activities of

GLERL that are regarded by the Great Lakes states and the private sector as being most essential, funding will be found to continue them.

Question. Has NOAA made any attempt to contact anyone concerning future funding sources?

Answer. NOAA has not made attempts to identify alternative funding sources.

Question. What plans to you have to insure an orderly transition of personnel and research projects to avoid the loss of talent and accumulated knowledge?

Answer. The GLERL projects and related staff that are important to the total NOAA marine assessment program will be transferred to the two remaining oceanographic laboratories. NOAA will attempt to work with state and local agencies to transfer the remaining physical limnology programs to appropriate agencies and with local universities to transfer the assessment research responsibilities to the universities.

Question. The State of Michigan currently has an $800 million deficit. Is it realistic to assume that the federal share at GLERL will be picked up by state sources?

Answer. Most economic indicators point to an upturn in the economy through the remaining months of fiscal year 1983 and into fiscal year 1984. By fiscal year 1984, when this transfer is proposed, the state of Michigan should be back to a more normal economy and able to consider the contribution of GLERL among its other priorities in their budget process.

Question. Isn't it correct that the Canadians have actually increased Great Lakes research funding in recent years, while our overall effort has declined? If so, please provide funding totals for each nation since 1980.

Answer. Funding for water quality related research on the Canadian side has been approximately 15-20 million dollars per year for the last three years according to a study by the International Joint Commission.

The funding on the U.S. side is as follows:

Fiscal year:	*Millions*
1980	$23.5
1981	21.2
1982	18.0
1983	17.9
1984 (request)	10.1

Question. How does the administration intend to handle any international repercussions that might occur with the termination of GLERL?

Answer. The Administration does not expect international repercussions as a result of closing GLERL.

Senator TRIBLE. Dr. Knauss, would you step forward, please?

Dr. Knauss, I must insert a personal word here. I have served in the U.S. Congress for 7 years. This is the first opportunity I have had to chair a hearing. I have a great affection for Tip O'Neill, but I am mighty pleased to leave the U.S. House of Representatives and join the majority in the Senate. This is one of the opportunities that goes along with being in the majority.

Dr. Knauss is chairman of the National Advisory Committee on Oceans and Atmosphere. You are welcome, sir. Do you have a statement, sir? Or would you wish to summarize your statement?

STATEMENT OF DR. JOHN KNAUSS, CHAIRMAN, NATIONAL ADVISORY COMMITTEE ON OCEANS AND ATMOSPHERE

Dr. KNAUSS. I have a very short statement, Mr. Chairman.

I appreciate the opportunity to present NACOA's views on those parts of NOAA's ocean programs which we examined in the past year or so, and to comment on the fiscal year 1984 budget proposals.

My statement is quite short, and I think I can go through it very quickly, sir. However, before doing so, I wish to share with you a very personal sense of disappointment. Those of us who have labored long and hard in the ocean business for the past few decades to bring national marine affairs to a place of prominence and focus now feel pushed aside.

The institutions and mechanisms we established are ignored and degraded. Indeed, without the informed support of Congress, our national ocean program would be ineffective. Even with the annual congressional support, these programs lack consistency; and I do not envy those in Government, as John Byrne who just testified, as they must annually plan for closure or severe reduction, and yet try to read the tea leaves to keep on tap an option for program and staff continuity.

Having said this, let me now summarize NACOA's views on some aspects of the proposed fiscal year 1984 program for NOAA.

One of the most striking aspects of the 1984 NOAA program is the weakening of its research fleet from 22 active ships in 1982 to an estimated 12 for fiscal year 1984. Most of the reduction will be in fishery research vessels which also contribute to general marine environmental knowledge. I gather that some funds would be restored to the Fisheries Service to charter some ship time, which we understand to be about 3 ship years.

This is part of a continuing precipitous decline projected for our total national research fleet. In 1975, for example, there were 25 ships in the NOAA fleet and 32 in the federally funded research fleet for academic institutions, a total of 57 ships. In 1984, the NSF supported fleet will number 24. With NOAA's proposed reduction, the Nation's civil research fleet will be down to 36 in 1984, with most of NOAA's fleet mapping and charting. As a major seagoing nation, the United States cannot turn its back on its ocean future. We need to go to sea to know and to understand the sea.

I am not here to note how many ships are needed, although there have been many studies trying to give us this figure. Rather, I am here to note that the decline in marine research ships signals critical weakness in our Nation's research programs. NACOA understands, for example, that the NSF ocean research budget, though believed by some to be favorably treated with an increase in 1984, will be unable to support enough research to use fully all of the academic fleet.

Further, evidence of the alarming trend in a diminished U.S. marine research capability is evidenced by the proposed termination of the sea grant program, a reduction of 34 percent of NOAA's ocean research programs, and a 39-percent reduction in NOAA's marine fishery resource programs, all this year.

NACOA sees the same trend in decreased undersea research as well. Since 1974, the research submarine *Alvin* has been a vital contributor to deep-ocean biological discoveries and in the continuing revelations in marine geology, including the polymetallic sulfide investigations off our west coast. *Alvin,* with a depth capability of about 12,000 feet, is the only operating deep-diving research submarine in the U.S. civilian fleet, public or private. Yet NOAA's contribution of about 20 percent to a three-way funding agreement with Navy and NSF is proposed for termination in 1984. In the face of new submersibles being built by France and planned by Japan, each to a 20,000-foot capability, the NOAA reduction does not seem reasonable.

With respect to coastal zone management, we believe it is in the long-term economic interest of this Nation to provide a continued Federal perspective. Various coastal activities remain fragmented, multiuse conflicts are growing in crowded coastal areas, and a number of problems—energy, public access for recreation, fisheries, marine pollution, waste disposal—these are more than single State-level issues.

Coastal zone management provides the uniformity needed for effective preservation and utilization of this valuable boundary. Coastal zone management was designed to be phased out as coastal States developed their programs and took on implementation. NACOA believes a slower Federal phaseout is mandatory for reasonable assumptions of burden by the States. And I am concerned that given the heavy burden being placed on States to assume a variety of formerly Federal programs, many States will not be able to provide the necessary services, a point made by your committee earlier.

Let me say something about sea grant. NACOA is studying the sea grant program at this time, and may have some additional comments to provide in a few weeks for the record of these hearings.

Basically, NACOA views sea grant as a philosophy and a mechanism of considerable importance to our country which brings together a number of distinct institutions—States, universities, and local interests—to enhance scientific developments and technology transfers to the economy, and to address an increasing array of national and local programs. We strongly urge the continuing support of this vital national program, sir.

Finally, let me turn to ocean pollution research and monitoring. In 1981, NACOA expressed concern to the President and to the Congress that a number of independent environmentally oriented actions were precluding the effective disposal of our Nation's waste. At that time a complete ban on ocean dumping was imminent and marine pollution research was being reduced as a consequence.

We at NACOA were concerned that growing political and economic pressures associated with land disposal problems might create pressure for renewed ocean dumping, while marine research in pollution was being virtually eliminated.

After a lengthy study, NACOA made a number of recommendations which included the continuation of ocean dumping as a waste disposal option under appropriate management conditions and with adequate monitoring safeguards. Associated with this was our recommendation for increased emphasis on ocean disposal research and monitoring. Today, several coastal municipalities argue for increased ocean dumping. A shift in this direction must be accompanied by a strong marine research and monitoring effort.

Yet NOAA's plans for terminating all region-specific ocean pollution research, perhaps some 50 percent of its ocean disposal research, would seem to undercut any reasonable shift toward ocean disposal. The New York Bight and Hudson Raritan Estuary projects, the Northeast monitoring program, and the Puget Sound project would be terminated.

Also, NOAA's broader ocean dumping program would be severely reduced. These and other significant reductions, such as the termination of the sea grant's marine pollution research, and the significant reduction of habitat investigations in NOAA's fisheries program, are inconsistent given the renewed interest and continued activity in ocean waste disposal.

Because the ocean disposal may well be a politically and economically easy choice in the face of growing land disposal problems, and we are hearing a lot about land disposal problems these days, we must construct the means now to create strong and viable management and assessment programs based on monitoring and solid research. NOAA's projected funding plans for ocean disposal management and research fall short of meeting these needs and are not in consonance with changing disposal policies.

Closely related to this topic, Mr. Chairman, is the interest of your committee in the National Ocean Pollution Research and Development and Monitoring Planning Act. NACOA has supported this act, which requires the establishment of a comprehensive, coordinated, and effective ocean pollution research and development and monitoring program. The act requires that NOAA, with other appropriate agencies, prepare a comprehensive 5-year plan for the overall Federal effort in ocean pollution research and development and monitoring. The current plan, however, is not supported by the fiscal year 1984 budget proposals.

Mr. Chairman, these views collectively express the considerations of NACOA. NACOA is a group of individuals with a variety of backgrounds—industry, academia, law, State, and local interests—from all coastal areas of our country. Though achieving consensus in such a disparate group is difficult, we are of the joint belief that the oceans deserve priority consideration in our Nation's strategy for the future well-being of our citizens. Certainly, they deserve better than is represented by NOAA's 1984 proposed oceans program.

Thank you, sir.

Senator TRIBLE. Thank you, Doctor. I appreciate your contribution this morning, and certainly the thrust of your statement here today, and the essence of the concerns that many of us share, that the money dedicated to ocean research is being reduced substantially.

Senator LAUTENBERG. My only statement, Mr. Chairman, is that I agree with Dr. Knauss.

Senator TRIBLE. Thank you, Senator Lautenberg, for that contribution.

There is a tremendous national requirement that we do more in that area, and you have underscored that.

Let me ask you, how does NOAA coordinate with the National Science Foundation on ocean research, and in your judgment, will the National Science Foundation be able to support the ocean research efforts that NOAA is cutting back?

Dr. KNAUSS. There is no formal mechanism for coordination of ocean research between NOAA and the National Science Foundation. There certainly is an informal coordination among the various program managers who check out on the programs, but there is no way that the National Science Foundation's efforts in considering all of ocean science can and will take up the support of those programs that are being dropped by NOAA.

In particular, I do not see the National Science Foundation supporting the work in ocean dumping, marine pollution research, and so forth which is a part of that program.

I would also note that since NOAA is going to drop the sea grant program, that sea grant also supports—a fair amount of research which is also related to ocean pollution.

Senator TRIBLE. Do you feel this might be a particularly sensitive time to propose reductions in ocean dumping research when the dumping of sewage sludge is expected to double in the next few years?

Dr. KNAUSS. Absolutely, sir. The reason why NACOA got involved in the ocean pollution business in the first place, about 3 years ago, was that we were deeply concerned that even though ocean dumping was being phased out—the solution at that time was to put everything on land—we were deeply concerned that that solution was not going to last for very long. And I think we were right, as we can see in the newspapers, and now know about all the problems of toxic waste disposal on land, and these kinds of things.

Our concern then was that people would look back toward the ocean and find it a relatively easy and cheap solution. I think we are going to see more political pressures to go back into the ocean. Our concern was that, yes, perhaps the ocean could assimilate a certain amount of these materials, but that we could not allow that to happen without a much more intensive monitoring study and a research program to know what are the consequences of this.

I feel much more strongly about this today than I did 3 years ago when we first got involved in this.

Senator TRIBLE. Let me direct your attention to the sea grant program, if I might, Doctor. Doctor, if sea grant is eliminated, what, in your judgment, will be the economic effect on the marine industry? And let me ask one additional question that relates to sea grant as well. The administration appears to believe that the sea grant program serves only local or regional interests. Are there national benefits to this program?

Dr. KNAUSS. Of course, sea grant programs do focus specifically on local problems or regional problems, as you say, but a solution to a local problem very often has national consequences. If you take, for example, a study with respect to, say, marine pollution in the Chesapeake Bay, which may be sea grant supported——

Senator TRIBLE. That is an appropriate place to begin.

Dr. KNAUSS [continuing]. Techniques that are developed there, information that you learn in that area clearly has relevance to similar kinds of problems in Delaware Bay or Narragansett Bay or in Puget Sound, for example. Development of oyster farming may be important in Maine, but it is also important in New York, and the techniques that are developed perhaps have importance on the west coast also.

So, although the programs themselves are specifically developed and related to local interests, if they are good programs, they very often are important nationally also, sir.

Senator **Trible**. Let me direct your attention, Dr. Knauss, to the administration's proposals for funding for the coastal zone management programs. What are the consequences of eliminating that funding for States in coastal zone management programs? It is my view that perhaps the reduction should be made on a gradual basis instead of a termination overnight.

Dr. **Knauss**. Well, as you know, sir, when the program was first established, the idea that it would in time be phased out as each State developed its program and reached a certain level of maturity. I believe those of us who have followed coastal zone management still think this is a desirable goal.

Two things have happened, one of which is, as John Byrne noted, that many States were slow in getting their programs established, and so, therefore, it would be premature, I am afraid, to say cut it out at this point. As you noted, Virginia does not have its plan yet fully developed.

However, a second thing has happened recently. The Federal Government is putting on the States the responsibility for a large number of programs which were formerly federally supported. I come from Rhode Island, which is probably the most coastal-zone-oriented State in the United States. Our definition of Rhode Island is Narragansett Bay surrounded by a small bit of land. And we feel very strongly about a coastal zone program.

But given the budgetary problems of Rhode Island at this point, I am not very sanguine about the State having to pick up coastal zone management if it cannot solve some of the problems of human services which are again being forced upon us in our State by the Federal Government. I think our Governor Gary would have a difficult time making that choice.

Senator **Trible**. Thank you very much, Doctor.

Senator Gorton?

Senator **Gorton**. Doctor, I came in during the midst of your testimony and have only had a chance to glance at it, but I would like you to expand on the ocean research fleet and to be more specific as to why you think it needs to be maintained at least at its present level for the position of the United States.

Dr. **Knauss**. The United States has had a reputation since World War II of being the premier marine research nation in the world. We like to think that satellites will provide new ways of looking at the ocean, and they do provide new ways of looking at the ocean. We can also do a lot of things with oceanic buoys and instrumentation and these kinds of things. However, all of my colleagues are convinced, and I am convinced, that the research vessel will be here with us for a long time. It is an important and critical element if we are going to truly understand the ocean.

The United States is not a part of the Law of the Sea Treaty, but we have in effect our own exclusive economic zone of 200 miles. That area out to 200 miles which we now have jurisdiction on with respect to all of the resources in the area is equal to about 80 percent of the total land area of the lower 48 of the United States. So, we have a new, if you will, geographical area which is ours, in terms at least of resources, to explore and eventually to exploit.

It seems to me that it is unconscionable for the major maritime country in the world to keep reducing its research fleet in the way that we have been doing for the last few years.

Senator GORTON. Is there any substitution of satellite research from space for the kind of research which formerly required a ship at sea?

Dr. KNAUSS. Satellites give you a whole new dimension of the ocean which you do not get from a ship. At the University of Rhode Island, we use satellites routinely. Routinely is an overstatement. It is hard to use satellites, but we use them as best we can to complement our research programs, and they help us a lot. They do not, however, give us the same kind of information we get with a ship.

Senator GORTON. So, satellites give you new and different kinds of information which you need, but they are not a substitute for ships.

Dr. KNAUSS. What I would like to say is, we have found enough new ideas with satellites that in an ideal world we would like to have more ships rather than fewer ships.

Senator GORTON. Simply for my own parochial purposes, can you outline what the impact of this year's proposed budget would be in the Puget Sound and off the coast of the State of Washington?

Dr. KNAUSS. I cannot in any detail, sir. I think I understand one part of the budget, however, which is that certain specific site-specific Government-supported pollution programs, of which one is Puget Sound, would be zero funded. And my recollection is that you also have a large fisheries laboratory in the Seattle area. And, although this hearing does not address the fisheries part of NOAA specifically, I believe if one looks at the total fisheries program which takes a very large cut, I can only assume that some of that will be felt in the Washington area, also.

Senator GORTON. What impact will this budget have on coastal zone management programs of the various States? And will that vary depending on how far along the State's coastal zone management plan is?

Dr. KNAUSS. The coastal zone management program is to be zeroed out this year. Therefore, it will have a differing effect depending upon how far along each State is, and what each State is prepared to pick up in terms of its own State budget.

Senator GORTON. Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF DR. JOHN A. KNAUSS, CHAIRMAN, NATIONAL ADVISORY COMMITTEE ON OCEANS AND ATMOSPHERE [1]

Mr. Chairman, I appreciate your invitation to appear before this Committee to present NACOA's views on those of NOAA's ocean programs which we examined during the past year or so, and to comment on the Fiscal Year 1984 budget proposals.

Before I note specific committee observations, I must share with you a personal sense of dissappointment. Those of us who have labored long and hard in the ocean business for the past few decades to bring national marine affairs to a place of prominence and focus, now feel pushed aside; the institutions and mechanisms we established, ignored and degraded. Indeed, without the informed support of the Congress, our national ocean programs would be ineffective. Even with annual Congressional support these programs lack consistency. I do not envy those in government as they must annually plan for closure or severe reduction yet try to read the tea leaves to keep on tap an option for program and staff continuity.

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[1] The National Advisory Committee on Oceans and Atmosphere (NACOA) is a non-Federal, 18-member body, appointed by the President. Members represent industrial, scientific, and environmental concerns associated with marine, atmospheric, and coastal zone policy. Enabling legislation (Public Law 95-63) mandates that NACOA advise the President and Congress on these matters.

I will now summarize NACOA's views on some aspects of the proposed Fiscal Year 1984 program for NOAA. One of the most striking aspects of the 1984 NOAA program is the weakening of its research fleet from 22 active ships in 1982 to an estimated 12 for Fiscal Year 1984. Most of the reduction will be in fishery research vessels which also contribute to general marine environmental knowledge. Some funds would be restored to the Fisheries service to charter some ship time—which we understand to be about 3 ship years. This is part of a continuing precipitous decline projected for our total national research fleet. In 1975, for example, there were 25 ships in the NOAA fleet and 32 in the Federally funded research fleet at academic institutions—a total of 57 ships. In 1984, the NSF supported fleet will number about 24. With NOAA's proposed reduction, the Nation's civil research fleet will be down to 36 in 1984, with most of NOAA's fleet mapping and charting. As a major seagoing Nation, the U.S. cannot turn its back on its ocean future. We need to go to sea to know the sea.

We are not here to note how many ships are needed; although there have been many studies trying to give us this figure. Rather we are here to note that the decline in marine research ships signals critical weakness in our nation's research programs. NACOA understands that the NSF ocean research budget, though believed by some to be favorably treated with an increase in 1984, will be unable to support enough research to use fully all of the academic fleet.

Further, the alarming trend in a diminished U.S. marine research capability is evidenced by the proposed termination of the Sea Grant program, a reduction of 34 percent of NOAA's ocean research programs, and a 39 percent reduction of NOAA's marine fishery resource programs.

NACOA sees the same trend in decreased undersea research as well. Since 1974, the research submersible ALVIN has been a vital contributor to deep-ocean biological discoveries and in the continuing revelations in marine geology, (including the polymetallic sulfide investigations off our west coast). ALVIN, with a depth capability of about 12,000 feet, is the only operating deep-diving research submarine in the U.S. civilian fleet. Yet NOAA's contribution of about 20 percent to a three-way funding agreement with Navy and NSF is proposed for termination in 1984. In the face of new submersibles being built by France and planned by Japan, each to a 20,000 foot capability the NOAA reduction does not seem reasonable.

With respect to Coastal Zone Management, we believe it is in the long-term economic interest of this Nation to provide a continued Federal perspective. Various coastal activities remain fragmented, multi-use conflicts are growing in crowded coastal areas, and a number of problems—energy, public access for recreation, fisheries, marine pollution, waste disposal—are regional and national rather than single State level issues. Coastal Zone Management provides the uniformity needed for effective preservation and utilization of this valuable boundary. Coastal Zone Management was designed to be phased out as coastal States developed their programs and took on implementation. NACOA believes a slower Federal phase out is mandatory for reasonable assumptions of burden by the States. I am concerned that given the heavy burden being placed on States to assume a variety of formerly Federal programs, many States will not be able to provide the necessary services.

NACOA is studying the Sea Grant program at this time and may have some additional comments to provide in a few weeks for the record of these hearings. Basically, NACOA views Sea Grant as a philosophy and a mechanism of considerable importance to our country which brings together a number of distinct institutions—States, universities, and local interests—to enhance scientific developments and technology transfers to the economy, and to address an increasing array of national and local problems. We strongly urge the continuing support of this vital national program.

I turn next to ocean pollution research and monitoring. In 1981, NACOA expressed concern to the President and to the Congress that a number of independent environmentally oriented actions were precluding the effective disposal of our Nation's waste. At that time a complete ban on ocean dumping was imminent and marine pollution research was being reduced as a consequence. NACOA was concerned that growing political and economic pressures associated with land disposal problems might create pressure for renewed ocean dumping, while marine pollution effects research was being virtually eliminated. After a lengthy study, NACOA made a number of recommendations which included the continuation of ocean dumping as a waste disposal option under appropriate management conditions and with adequate monitoring safeguards. Associated with this was our recommendation for increased emphasis on ocean disposal research and monitoring. Today, several coastal municipalities argue for increased ocean dumping. A shift in this direction must be accompanied by a strong marine research and monitoring effort.

Yet NOAA's plans for terminating all region-specific ocean pollution research, perhaps some 50 percent of its ocean disposal research, would seem to undercut any reasonable shift toward ocean disposal. The New York Bight and Hudson Raritan Estuary projects, the Northeast Monitoring Program, and the Puget Sound project would be terminated. Also, NOAA's broader ocean dumping program would be severely reduced. These and other significant reductions, such as the termination of Sea Grant's marine pollution research, and the significant reduction of habitat investigations in NOAA's fisheries program, are inconsistent given the renewed interest and continued activity in ocean waste disposal.

Because ocean disposal may well be a politically and economically easy choice in the face of growing land disposal problems, we must construct the means now to create strong and viable management and assessment programs based on monitoring and solid research. NOAA's projected funding plans for ocean disposal management and research fall short of meeting these needs and are not in consonance with changing disposal policies.

Closely related to this topic, Mr. Chairman, is the interest of your Committee in the National Ocean Pollution Research and Development and Monitoring Planning Act. NACOA has supported this Act which requires the establishment of a comprehensive, coordinated, and effective ocean pollution research and development and monitoring program. The Act requires that NOAA, with other appropriate agenices, prepare a comprehensive 5-year plan for the overall Federal effort in ocean pollution research and development and monitoring. The current plan, however, is not supported by the fiscal year 1984 budget proposals.

Mr. Chairman, these views collectively express the considerations of NACOA, a group of prominent individuals with a variety of backgrounds—industry, academia, law, state and local interests—from all coastal areas of our country. Though achieving consensus in such a disparate group is difficult, we are of the joint belief that the oceans deserve priority consideration in our Nation's strategy for the future well-being of our citizens. Certainly, they deserve better than is represented by NOAA's 1984 proposed oceans program.

Thank you for your attention. That concludes my formal remarks and I would be pleased to answer any questions the Committee may have.

[The following information was subsequently received for the record:]

National Advisory Committee
on Oceans and Atmosphere,
Washington, D.C., March 8, 1983.

Hon. Bob Packwood,
Chairman, Senate Committee on Commerce, Science, and Transportation, Washington, D.C.

Dear Senator Packwood: When I appeared before your Committee on Monday, February 28, 1983, my testimony included a brief statement of support for the continuation of the Sea Grant program. I also indicated that NACOA was studying that program and would have additional comments for inclusion in the record of the Committee hearings.

I am pleased to enclose herewith for that record NACOA's Position Statement on the National Sea Grant Program strongly supporting that program.

Sincerely,

John A. Knauss, *Chairman.*

Enclosure.

National Advisory Committee
on Oceans and Atmosphere,
Washington, D.C., March 7, 1983.

NACOA Position Statement on the National Sea Grant Program

Historically, the National Advisory Committee on Oceans and Atmosphere (NACOA) has been a strong supporter of the National Sea Grant College Program. For this reason and because the Sea Grant program is scheduled for Congressional reauthorization in the Spring of 1983, NACOA has conducted a review on the effectiveness and benefits of Sea Grant. As a result of this review, NACOA reaffirms its belief that the Sea Grant program is a unique national asset which must be maintained to foster the development of our Nation's marine resources.

Sea Grant has contributed significantly to the management, wise use, and protection of our Nation's marine resources. A number of recent studies have measured these contributions in terms of their economic significance. The results of these studies conclude that the Sea Grant program operates in a highly cost-efficient manner producing economic benefits an order of magnitude greater than the annual financial investment in the program. Moreover, the program has been cited by Congressional committees, the Heritage Foundation, and others as one of the most effective programs of the Federal Government.

Much of Sea Grant's effectiveness can be attributed to the conceptual framework within which the program was established in 1966—a partnership among State and Federal governments, universities, and private industries. Collectively, the partnership arrangement provides a comprehensive research and development effort that is focussed on development of marine resources through a national network of universities and institutions of higher learning. The national network orientation of the program is essential to provide educational, research, and advisory services that embrace a broad array of marine scientific, engineering, and commercial activities. Furthermore, the Sea Grant network serves as a "transmission belt" that transfers information and technology to the user community. In turn, this transmission belt relays problems experienced by the user community to Sea Grant practitioners for research or development.

NACOA believes the Sea Grant program is responsive to the Congressional mandate that established the program. Contemporaneously, NACOA also believes that several structural elements of the Sea Grant program require a reorientation toward recent trends in ocean science. Specifically, these program elements include the national and international programs, and the participation of the private sector in Sea Grant research activities. These elements are discussed below.

National projects program

In 1976, the National Sea Grant College Program Act was amended to provide, among other things, a separate appropriation for the support of marine resource projects that were national in scope. The primary purpose of this objective was to "identify specific national needs and problems with respect to ocean and coastal resources . . . [and] enter into contracts . . . with respect to such needs and problems." NACOA supports the concept of this national project provision and believes it is an important aspect of the Sea Grant research program. However, the Committee also believes that this particular element of the Sea Grant program has not developed in the manner in which Congress intended.

Many of the projects in the Sea Grant national program focus on problems in a generic sense at various Sea Grant institutions around the country. In effect, the national Sea Grant program office identifies a specific national problem, such as marine corrosion, that should be addressed and investigated by Sea Grant institutions. Proposals from institutions are then independently transmitted to the Sea Grant program office for review and approval. As a result, many of the national projects are not necessarily coordinated between institutions or within the Sea Grant network. This program management approach does not encourage nor promote the Sea Grant institutions to blend their available resources and various areas of expertise on broad problems of national importance or of major regional importance to many states.

NACOA believes that the overall strength of the national projects program can be improved with unified planning for developing major projects to investigate national problems within geographical regions (for example the New York Bight, Gulf of Mexico, Great Lakes, Puget Sound, etc.). Such an approach will encourage Sea Grant institutions to join together to focus on broad problems that transcend coastal state boundaries as well as problems of national importance to the United States in a more effective manner.

Sea grant international program

The Sea Grant International Program (SGIP), like the national projects program, was established by the National Sea Grant College Improvement Act as a separate appropriation. The original objectives of the SGIP are to 1) "enhance the research and development capability of developing foreign nations with respect to ocean and coastal resources," and 2) "promote the international exchange of information and data with respect to the assessment, development, utilization, and conservation of such resources."

The first objective overlaps with functions of the Aid to International Development (AID) program. In fact, AID has provided some support through the Sea Grant International Program for the provision of marine technical assistance activities with third world nations. If the Federal Government believes that this activity is important to its foreign assistance interests, then it should be supported. If not NACOA recommends that the Sea Grant program deemphasize the AID approach of the SGIP program.

Instead, Sea Grant should accelerate and promote activities related to the second program objective, the cooperation and exchange of marine information with all coastal nations. While we should not slight the opportunities and benefits of scientific cooperation with less developed countries, neither should we avoid cooperative arrangements with nations that have developed marine scientific skills which match our own. In this way we provide maximum benefit to ourselves and all other coastal nations.

Industry participation

Colleges have served as the primary base for Sea Grant research, education, and advisory services. Despite this primary research relationship, any institution, agency, or industry, public or private, is eligible to receive support from the Sea Grant program, provided it submits a research proposal and meets the match funding requirements mandated by the Act. In the course of our review, we discovered, that direct participation in Sea Grant research by private industry is virtually zero. NACOA believes that this situation is a waste of a vast resource pool which could be drawn upon to assist in the development of our ocean and coastal resources. Moreover, the private sector could benefit from the expertise available within the Sea Grant community. A Sea Grant objective to increase private sector participation in Sea Grant research should be a directed, priority effort; it could foster new investment, develop new markets, and stimulate new industry.

Reauthorization

The primary purpose of the Sea Grant program is the development of a network of colleges and institutions of higher learning in the coastal and Great Lakes states to "achieve the gainful use of marine resources" through a partnership between the Federal and state governments, universities, and the private sector. The tripartite partnership is essential to complete the Sea Grant network system. More specifically, continued Federal participation in the partnership is critical to the development and continued operation of a complete Sea Grant network.

Due to the present fiscal constraints and consequent reduction in federal appropriations, many of the Sea Grant Colleges and institutions have been faced with an eroding support base with which to fund program needs and opportunities. At the same time, most of the coastal and Great Lakes states and universities are experiencing budget problems as more and more programs that have been supported by the Federal Government are being shifted to the States. The result of this eroding support is that the Nation will not receive the significant contributions that Sea Grant is capable of making in the development of our marine resources. Positive action is needed to halt this erosion.

Moreover, the Committee recommends that the level of authorization be based on the funding necessary to operate a complete Sea Grant network, or, a major Sea Grant program in each coastal and Great Lakes state. Presently, the major, well developed Sea Grant College programs each compete successfully for approximately $2.0 million per year. Based on this figure and by factoring in the total number of coastal and Great Lakes states in the Nation (30), NACOA believes that a $60 million authorization figure is not unreasonable to operate a completed Sea Grant network today, when one considers the demonstrated benefits and future potential of the program.

NACOA realizes that present fiscal constraints mandate a short-term "belt-tightening" and that Sea Grant appropriations over the past two fiscal years are a reflection of this budget policy. However, NACOA also firmly believes that Sea Grant is a valuable national asset that has contributed significantly to the development of our Nation's marine resources and worthy of continued funding. NACOA strongly recommends that authorization be a clear statement of support for the completion of the Sea Grant network and subsequently, for the continuation of the network system.

Furthermore, NACOA recommends that the reauthorization be for a multi-year period. We put forward this recommendation for several reasons. First, a stable and assured level of support is important to assure that the excellence in faculty and students, and thus in research and product, that are presently associated with Sea Grant remain with the program. It is extremely difficult to put faith and energy into a program that is bouncing up and down from year to year. The fiscal uncertainties of the past few years have jeopardized the scientific talent associated with the Sea Grant community and have required inordinate expenditures of time in the process; many Sea Grant researchers have elected to leave for, presumably, a more stable work environment. A multi-year reauthorization will provide a signal to the Sea Grant community that is both positive and responsive to the national effort directed at the development of our marine resources.

Secondly, research and education are activities that require leadtime for review of proposals and for planning purposes. An authorization of at least 5 years would provide the necessary span of time needed for effective planning.

In addition to our recommendations on the specific Sea Grant program elements discussed above and our views and recommendations concerning program reauthorization, NACOA believes that any revisions to the National Sea Grant College Program Act should preserve the foundation that has made the program successful. These include maintenance of the Sea Grant network and the "targeted" research approach to develop of ocean and coastal resources, and continuation of the federal and congressional oversight process. Maintenance of the federal role and partnership in the Sea Grant program ensures the wise use, development, and conservation of our Nation's common property marine resources, and provides coordination of the program on a nationwide basis. Congressional oversight is essential for ensuring that the effectiveness of Sea Grant is weighed against the ocean elements that affect the national economy, security, and public well-being of our country.

Senator TRIBLE. Doctor, I have no further questions. We thank you for your presence today, and for your testimony.

Mr. Gorton, would you like to take the helm here?

Senator GORTON [presiding]. We will now move to a marine sanctuaries panel, with Mr. Weber and Mr. Spaulding. Will they come forward, please?

Mr. Spaulding, why do we not start with you? You may proceed.

STATEMENT OF A. O. SPAULDING, VICE PRESIDENT AND GENERAL MANAGER, WESTERN OIL & GAS ASSOCIATION

Mr. SPAULDING. Thank you, Mr. Chairman.

My name is Arthur O. Spaulding. I am the vice president and general manager of the Western Oil & Gas Association, headquartered in Los Angeles, Calif. Our organization also includes the Alaska Oil & Gas Association as one of our divisions, and it is our understanding that the Alaska Oil & Gas Association, although not represented personally here, will be submitting a formal statement for the record.

Senator GORTON. And we will include it in the record.

Mr. SPAULDING. Thank you, sir.

In keeping with the instructions that I received from the chairman, I do not propose to read my statement to you, but rather to provide you with some opening remarks and some explanatory detail which will give you some indication of our concern with regard to the marine sanctuaries program, some of its effects already and future possibilities.

To do that, I would like to tell you something about California off-shore production. It is a matter of interest that the Santa Barbara Channel is one of two OCS areas which are productive of hydrocarbons, the other one being the Gulf of Mexico. Those are the only two OCS areas off-shore from the United States found productive at the present time. Indeed, in 1895, oil was first produced from the Santa Barbara Channel, so we have a long history of oil and gas production that we use to project our estimates of what is going to happen in the future.

Just to give you some idea of what has happened in the recent past, in 1980, production in the Santa Barbara Channel amounted to about 30,000 barrels per day. In 1982, largely as a consequence of the discovery made by Exxon at Hondo westerly of Santa Barbara, production has risen to about 80,000 barrels a day.

The prospects for the future are even more handsome than those immediate indications in the past. Exxon has lately filed a plan of development suggesting that production on the order of 125,000 barrels per day may be achieved within the next few years from their operations alone.

Other operators at the westerly end of the Santa Barbara Channel have made discoveries that have profound significance as well, and it is not unlikely that production on the order of tens of thousands of barrels per day, and in fact even hundreds of thousands of barrels per day may be attained within the next 10 years within the Santa Barbara Channel.

And perhaps you have heard of the discoveries which have been lately made westerly of Santa Barbara County in the Santa Maria Basin by a number of operators. Those discoveries are based upon tests at the present time, but they suggest that production on the order of, say, 500,000 barrels a day may not be unlikely within the next 10 years westerly of Santa Barbara County in the OCS areas.

In terms of national significance with regard to these numbers, it is important to understand that the national contribution that those volumes of production may make and that at the present time we are currently importing about 4 million barrels a day of foreign oil, which currently is selling or is worth about, say, $100 million a day that we are paying for it—that figure may change tomorrow—but if you just take 500,000 barrels a day as being the volumes that may be expected in the reasonable future off-shore from Santa Barbara County, you can see that that constitutes more than 10 percent of our current import levels and what a major contribution such production would make in eliminating the need for foreign supplies.

And if you put all of these numbers into the right context, you can see how profoundly concerned we are with the impact to the marine sanctuaries program or any other program that might tend to delay or block the arrival of these volumes of hydrocarbons in the U.S. marketplace.

Now, to talk about marine sanctuaries themselves, our association believes it is a splendid idea to preserve the conservational, recreational, ecological, and aesthetic values for which the act was intended. In fact, the evolution of our society, I think, requires consideration of these values.

At the same time, we believe it is an equally splendid idea to seek to find new accumulations of oil and gas, such as I have mentioned earlier, as a means of sustaining our economy and to offset the payments that we make for our foreign oil, and further, to guarantee our national security, as we are still 30 percent dependent on foreign oil for our daily petroleum requirements.

I suppose it is inevitable that there should be a collision between these two programs, and it is predictable that this collision might occur in the Santa Barbara Channel. A marine sanctuary was formed, as you know, in the Santa Barbara Channel around the Channel Islands in 1980. The Santa Barbara Channel is an area of scenic grandeur, and from a geologic point of view it is one of the most prolific hydrocarbon productive provinces in the world.

So, hence, the setting is created for such a collision. The marine sanctuary formed in 1980 has now carried with it a prohibition against oil and gas operations, not on leases which are grandfathered in, those leases which were issued before the formation of the sanctuary where drilling is permitted as a matter of law, but the regulations having to do with the prohibition on any new leases which may be issued within the sanctuary really do not make any sense, for nobody is going to offer to buy a lease in the future, should they be offered if one faces that prohibition and knows perfectly well that operations are going to be prohibited.

All of our problems have coalesced with the decision recently made by the California Coastal Commission where the Coastal Commission has denied a permit to one of our member companies to operate on one of these leases issued before the formation of the Santa Barbara Channel Island marine sanctuary. That denial of that application was based on the presence of the marine sanctuary and other factors.

But the mere presence of the marine sanctuary has indicated to us in this denial that our fears that there would be some impact from these marine sanctuaries on such a program carrying with it prohibitions would eventually cause us to delay or otherwise have to resort to other tactics in order to seek to drill upon this valid lease.

There are on the drawing boards a number of marine sanctuary proposals off the west coast of the United States, and we have the same fears with regard to those proposals as we have expressed here, in that it is uncertain whether those contemplated marine sanctuaries would carry the same prohibitions that the Santa Barbara Channel Islands marine sanctuary now has.

So, that generally constitutes the prolog, I think, for our formal statement, copies of which you have.

Now, with respect to our recommendations, I remind you that we have no fundamental objections to the creation of marine sanctuaries, provided that their basic purpose and their rationale are carried out as intended by Congress when Congress adopted the original statute.

We believe that it is proper to establish these sanctuaries where it has been demonstrated to be necessary to preserve the values which are outlined in the act, and we cite for you the classic marine sanctuary which overlies the relic of the U.S.S. *Monitor* as being a sanctuary of the type which we endorse.

We also say that any newly formed or designated marine sanctuary should not by definition or by regulation prohibit oil and gas operations within it, and we believe we can operate in the marine environment safely without damage to environmental values.

Finally, we recommend that periodic reviews be made of the funding programs for the creation of marine sanctuaries and that the overall direction of the marine sanctuary program be reviewed every 3 years to make sure that it comports with the original intent of Congress.

Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF ARTHUR O. SPAULDING ON BEHALF OF THE WESTERN OIL GAS ASSOCIATION

I. INTRODUCTION

My name is Art Spaulding. I am Vice-President and General Manager of the Western Oil Gas Association ("WOGA"), a trade association representing 92 companies which explore for, develop and market petroleum and petroleum products in the western United States. WOGA members have no objection to the marine sanctuaries program as it was originally adopted by Congress. We support the preservation and protection of carefully chosen marine and estuary areas that contain truly unique and valuable marine life or artifacts. WOGA members object strongly, however, to the way the marine sanctuaries program has been administered nationwide and in particular the way it has been implemented in areas offshore California, where it is being used as an excuse to stop oil and gas development. Congressional debates show that this is not what Congress intended when it adopted the program. Rather, the Marine Sanctuaries Act contemplated the protection of small areas of unique significance which were not otherwise the subject of federal authority. In a few cases, this has been accomplished. In most cases, it has not.

This is not the first time that WOGA has testified concerning the Marine Sanctuaries Act. In past years, the focus of our comments at reauthorization hearings has been much the same as outlined above. Now, however, the sanctuaries program has been in existence long enough to provide us with some specific examples which demonstrate that our concerns were well-founded. For example, we have objected in the past to the adoption of regulations for sanctuaries offshore California which prohibit oil and gas operations on new leases within the sanctuaries. Not only did we feel that such prohibitions were not "necessary" to effectuate the purposes of the Marine Sanctuaries Act, as required by that Act, but we predicted that they might lead to a blanket prohibition of such activities wherever a sanctuary was designated. Recently this prediction has come true. While the regulations only probibit oil and gas activities on new leases, operations have been prohibited on an existing lease in the Santa Barbara Channel on the ground, among others, that the area is a marine sanctuary. This interpretation has no foundation in either the act or the implementing regulations for the Channel Islands Marine Sanctuary. However, it is a perfect example of how this Act is being used for purposes for which it was never intended.

Although the prohibition on oil and gas operations in sanctuaries offshore California is the focus of our comments, we have several other ongoing concerns. One is the size and number of present and future proposed sanctuaries. Another is the regulatory "overkill" which results from a program which has accomplished little or nothing more than that which is already being handled by other regulatory agencies. At best, the sanctuaries program offers the potential for duplicative effort, confusion and conflict. Finally, we do not believe the costs of the program can be justified by the results which have so far been achieved. Given these overriding problems, it is our view that the sanctuaries program should be redirected to accomplish the original intent of Congress.

II. DISCUSSION

A. Clarification of purposes

Under the Marine Sanctuaries Act, in order to designate an area as a marine sanctuary, the designation must be:

". . . necessary for the purpose of preserving or restoring such areas for their conservation, recreational, ecological or aesthetic values." 16 U.S.C. § 1432.

Legislative history shows that use of the term "necessary" was no accident. Marine sanctuaries legislation was at one time opposed on the floor of the House on the ground that it would result in the "unnecessary locking up" of offshore resources, particularly oil. (Cong. Rec. House, Sept. 9, 1971, p. 31134.) The sanctuaries legislation was defended by Congressman Lennon, the bill's sponsor, on the basis that:

"The Secretary must find that oil exploration or extraction cannot be conducted consistent with the purpose for which the sanctuary was established."

Congressman Dingell emphasized: "This legislation is not going to halt oil drilling" (page 31136). The stated intent of Congress at the time it enacted the legislation was to protect unique ocean areas, and only to interfere with energy development when it was demonstrably inconsistent with the purpose of the sanctuary. A perfect example of a sanctuary which fulfills this purpose is the marine sanctuary to protect the historic USS *Monitor.*

The federal government's implementation of the marine sanctuaries program on the West Coast has been in direct conflict with this stated purpose. The implementing regulations for both the Channel Islands Marine Sanctuary (designated on September 22, 1980) and the Point Reyes/Farallon Islands Marine Sanctuary (designated on January 16, 1981) prohibit, without any showing of necessity, oil and gas exploration, development and production activities on all leases within the sanctuary area issued after the sanctuary was designated. (45 Fed. Reg. 65198 (1980); 46 Fed. Reg. p. 7936 (1981).

Yet there is nothing in the Marine Sanctuaries Act which makes it "necessary" to prohibit oil and gas operations on new leases. Therefore, WOGA has from the beginning taken the position that sanctuary designation was being improperly used to eliminate offshore oil operations in sanctuary areas. Recently these concerns have intensified because the California Coastal Commission, a state agency empowered by the Coastal Zone Management Act with consistency review powers over all activities affecting the California coastal zone, has used the Channel Islands Marine Sanctuary to prohibit oil and gas operations on existing leases, as well as new leases. At a recent hearing, the Commission denied the request of one of WOGA's member companies to drill two wells on an existing lease on the ground, among others, that the lease was located in a sanctuary and drilling was therefore inconsistent with the State's coastal management program. This was done even though the provisions of the Marine Sanctuaries Act and the implementing regulations for the Channel Islands Sanctuary make it clear that oil and gas operations are prohibited only on new leases, and not, as the Commission's ruling would suggest, on existing leases.

WOGA is also concerned with the large number and excessive size of the sanctuary sites being proposed nationwide. We are advised that as many as 35 sites will be given active consideration. Although we have no information as to the size of these proposed sanctuaries, we have found in the past that excessively large areas are proposed for designation, and often that oil and gas operations would be severely restricted or prohibited in the areas. The prohibition of petroleum development is invariably made without any showing, based on scientific research or prior experience, to support it.

We request that the subcommittees examining the reauthorization take a close look at the effect on energy of the sanctuaries designated and proposed, and clarify that the authorizing legislation does not require the exclusion of oil and gas activities from within a sanctuary.

B. Examination of duplicative or conflicting regulations

We also request an examination of the duplicative and conflicting regulations which have resulted from the sanctuaries program. In the two areas offshore California where sanctuaries have been designated, the designations have done nothing more than add multiple layers of bureaucracy to the already numerous agencies with jurisdiction over the sanctuary areas. Taking the Channel Islands Sanctuary as an example, at the time of the designation there were approximately eighteen federal and state agencies which administered some 21 statutes, most of which are related to environmental protection. To further point out the duplication of effort, we are advised that the National Oceanic and Atmospheric Administration ("NOAA") has designated the California Department of Fish and Game, a state agency which is already enforcing its own very similar laws and regulations in this area, as the lead agency to implement the sanctuaries regulations for the Channel Islands Marine Sanctuary. Such duplicative and oppressive regulation in no way furthers the purpose of protecting discrete and unique areas.

C. Examination of excessive costs

Finally, we urge that the subcommittees examining the reauthorization review the costs involved in the present and future administration of the sanctuaries program. In Alaska, for example, NOAA hired an independent contractor to help with the selection of proposed sanctuary sites. The Contractor's recommended sites covered 38,000 square miles, with individual sanctuary proposals as large as 10,000 square miles. After a general outcry from almost all segments of the potentially affected Alaskan communities, as well as protests from Alaska's Congressional delegations, the Contractor was relieved from its responsibilities and the site evaluation process terminated. (See Letter to Frank H. Murkowski, United States Senator, State of Alaska, from Mr. William Matuszeski, Acting Assistant Administrator, NOAA, dated October 26, 1982 (a copy is attached hereto).) There is no indication that the Contractor's work has been any more successful or productive in any of the other seven regions. Yet NOAA has contracted to pay a large sum of money for these services. At a time when budget constraints are forcing cutbacks in critically needed programs and services, the public deserves more for its money. There clearly exists a need to limit the size of potential designations, as well as requiring a showing that the proposed sanctuary is "necessary" to effectuate the purposes of the Act.

III. RECOMMENDATIONS

Our overall recommendation is that the sanctuaries program be redirected and limited to accomplishing the original intent of Congress. Specifically, we recommend the following:

First, we suggest that new sanctuaries be designated only where there is a clearly defined need and where it can be established that the implementing regulations will not duplicate or conflict with other regulations already in effect in the area. As to any sanctuary which will have an impact on oil and gas activities, we strongly recommend that all regulatory agencies with jurisdiction review and affirmatively find that the sanctuary regulations are consistent with but not duplicative of their own OCS exploration and development regulations and permit requirements.

Second, we ask that the subcommittees review the amount of funds already expended or committed to the sanctuaries program to determine if such an expenditure is necessary to effectuate the goals of the program.

Third, we recommend that a mandatory three-year review be conducted on all sanctuaries to determine if they are still "necessary" to effectuate the purposes of the Act.

Thank you for listening and considering these comments.

Attachment.

U.S. DEPARTMENT OF COMMERCE,
Washington, D.C., October 29, 1982.

Hon. FRANK H. MURKOWSKI,
U.S. Senate,
Washington, D.C.

DEAR SENATOR MURKOWSKI: This is to inform you of actions we are taking in response to concerns you have raised regarding the evaluation of candidate marine sanctuary sites in waters adjacent to the State of Alaska. A number of Alaskans have pointed out that important groups with vital interests in the oceans have not been sufficiently well informed of the purpose of the site evaluation effort or the implications of eventual designation of marine sanctuaries. In response to these concerns, and with considerable assistance from your staff, Dallas Miner, Director of the Sanctuary Programs Office, and staff member Kelvin Char held a series of meetings in Alaska during the month of October with a wide range of interested groups and individuals.

The results of this investigation indicate that, indeed, there were a number of serious deficiencies that prevented timely and fully informed public involvement by important interested groups in the marine sanctuary site evaluation process. Prior reports on the degree of contact with interested groups by the team to Alaskan scientists, state agencies, and Federal officials, were simply not borne out by the experiences of the Alaskans to whom Messrs. Miner and Char spoke. While many of those interviewed expressed basic sympathy with the general purposes of the marine sanctuary program, there was a near unanimous opinion that the deficiencies in public participation in the process to date made it undesirable to pursue the present course.

Under these circumstances, we are terminating the site evaluation process for new marine sanctuaries in the Alaska region, and relieving the contractor and the regional scientific team of further responsibilities with respect to Alaskan sites at this time. We plan to proceed with development of a Site Evaluation List comprising a total of approximately candidate marine sanctuary sites from 7 other regions of the Nation. This List will replace the current "List of Recommended Areas" which includes, among others, 13 large-scale sites in Alaskan waters, none of which meet our current criteria for compact size and proven need for more intensive management. The new Site Evaluations List will serve as our exclusive source of active marine sanctuary candidates. Once that List is considered exhausted, we will undertake a new site evaluation process. This should give adequate opportunity for us to work with your office, State of Alaska agencies, and important marine interests to assure that any future effects to apply the marine sanctuary program to Alaskan waters is responsive to Alaskan concerns.

Sincerely yours,

WILLIAM MATUSZESKI,
Acting Assistant Administrator.

[The following information was subsequently received for the record:]

QUESTIONS OF THE COMMITTEE AND THE ANSWERS THERETO

Question 1. To what extent to marine sanctuaries impair the exploration and development of new oil reserves?

Answer. Marine sanctuaries do not per se impair the exploration and development of new oil reserves located within the sanctuary. However, regulations adopted to govern activities within some sanctuaries specifically preclude new oil and gas development in these areas. Two examples are the Channel Islands and Point Reyes-Farallon Islands Marine Sanctuaries located offshore California. The regulations for the Channel Islands sanctuary include the following provision: "Hydrocarbon exploration, development and production activities pursuant to leases executed on or after the effective date of these regulations are prohibited." (15 C.F.R. § 935.6(c).)

The answer, then, is that exploration and production activities on new leases are completely precluded by the implementing regulations adopted for some sanctuaries notably those located offshore California.

Question 2. To your knowledge, has an existing marine sanctuary actually delayed or blocked oil exploration?

Answer. In light of the regulations prohibiting oil and gas operations on new leases in the Channel Islands and Point Reyes-Farallon Islands sanctuaries, there would be no incentive for a company to bid on such a lease and, no doubt in part with this in mind, no leases located within the sanctuary areas offshore California have been offered. The Santa Barbara Channel is a proven oil producing province. We feel certain that the sanctuary designation has blocked oil exploration and development that would otherwise have taken place.

Further, although the regulations for the Channel Islands and Point Reyes-Farallon Islands Marine Sanctuaries explicitly allow operations to continue on existing leases (see, e.g., 15 C.F.R. 945.6(a)), the California Coastal Commission has recently denied a development permit on an existing lease in the Channel Islands sanctuary on the ground, among others, that such operations would be inconsistent with the California coastal management program because of the location of the lease within a marine sanctuary.

Question 3. How do you see further designations of marine sanctuaries affecting the opportunities to discover new reserves?

Answer. Further designations of marine sanctuaries, if accompanied by regulations which preclude oil and gas operations, can, and certainly will, prevent these operations. Just as significant, even if the prohibitory regulations are limited to new leases, the mere fact that an area has qualified for sanctuary status may give rise to attempts to prohibit operations on existing leases, as well. On the other hand, if future sanctuary designations and accompanying regulations comply with the original intent of the Marine Protection, Research and Sanctuaries Act ("Marine Sanctuaries Act") by focusing only on those areas "necessary" for preserving and restoring unique resources, by limiting the geographic area included, and by supporting the concept of multiple use, then future designations of marine sanctuaries could be entirely compatible with the discovery of new reserves, as well as the development of existing reserves.

Question 4. There has been criticism of the program, highlighted last year by NOAA's proposals for marine sanctuaries in Alaska, that marine sanctuary designations are covering a far greater area than intended by Congress when the Act was passed. What is your experience with this problem and how do you see it being rectified?

Answer. We agree with the criticisms, some of which have been raised by WOGA and its member companies, that many of the proposed sanctuary designations have encompassed areas much larger than anticipated by the Marine Sanctuaries Act, and much larger than necessary to effectuate the goals of that Act. We have had first-hand experience with this problem both in Alaska and offshore California, where the Channel Islands Marine Sanctuary contains approximately 900,000 acres. This is to be contrasted with one of the earliest sanctuary designations, a small and discrete area encompassing the historic U.S.S. *Monitor*. We believe that the problem can be rectified by adhering closely to the requirement of the Marine Sanctuaries Act that sanctuary status be granted only where "necessary" to the preservation or restoration of areas for their conservation, recreational, ecological or esthetic values, and that sanctuaries be limited to the smallest geographic area practicable which will permit adequate management, monitoring and enforcement necessary to protect or restore the values identified above.

Question 5. There are currently pending in NOAA several nominations for marine sanctuaries off the coasts of California, Oregon and Washington. If these proposals were to become final, do you see this as an obstruction to your industry?

Answer. A listing of the sanctuary nominations referred to in this question was published in a Federal Register notice, dated March 1, 1983, with comments on the nominations due by May 31, 1983. WOGA is in the process of reviewing these nominations but, because the review is not yet complete, no specific comments can be offered at this time. Generally, however, if these proposed designations are accompanied by regulations which prohibit oil and gas operations, such as those in the Channel Islands and Point Reyes-Farrallon Islands sanctuaries, and if the areas contain the same amounts of measurable oil and gas reserves which have historically been found to exist in the Santa Barbara Channel, then this would definitely pose obstacles to the effective functioning of the petroleum industry in these areas.

Question 6. I understand there is legislation now before the House to substantively change the Marine Sanctuaries Program. If you have had the opportunity to review the bill, how do you feel the legislation addresses the concerns raised by your verbal and written testimony?

Answer. We assume that your reference to "legislation now before the House" refers to the bill introduced on February 24, 1983, by Representative John Breaux. Again, as with the sanctuary nominations offshore California, Oregon and Washington published on March 1, 1983, this bill is presently undergoing review by WOGA and its member companies, and final comments cannot be offered at this time. Generally, however, we believe that the Breaux bill successfully addresses several of the industry's concerns. For example, the bill goes further than existing legislation in requiring the Secretary, when recommending an area for sanctuary designation, to explain why the designation is necessary to effectuate the purposes of the Act (see, e.g., Section 303(a) (1)-(8)); it requires a statement of the estimated annual costs for administering the proposed sanctuary (Section 303(a)(7)); and it appears to more directly support the concept of multiple uses within sanctuary areas (Section 303(a)(4)).

Question. 7. I understand that there is a large oil discovery off-shore California in an area called the Santa Maria basin. Given some of the problems your industry has faced with the Marine Sanctuary program, please explain, if it is possible the probability of exploring and developing this field if a Marine Sanctuary had been imposed in this offshore area?

Answer. Again, the answer to this question depends primarily upon the regulations which would be adopted to control activities within the sanctuary area. If the regulations prohibit oil and gas operations, then the field could not be developed. If the regulations allow for multiple uses of the area, including oil and gas operations, then the field could be developed, so long as the remaining regulations and other management authorities are not so prohibitive in terms of costs and control measures imposed that exploration and production is not economically feasible.

Senator GORTON. Thank you, Mr. Spaulding.

Mr. Weber.

STATEMENT OF MICHAEL WEBER, MARINE HABITAT DIRECTOR, CENTER FOR ENVIRONMENTAL EDUCATION

Mr. WEBER. Thank you very much.

My name is Michael Weber. I am marine habitat director of the Center for Environmental Education. I wish to thank you for providing us with the opportunity to testify regarding the national marine sanctuaries program today.

I should note that today I am also representing the Coast Alliance, Friends of the Earth, National Audubon Society, National Resources Defense Council, and the Sierra Club.

I hope that our testimony today will aid Congress in its consideration of the future of the marine sanctuaries program. I also wish to note that we, too, are disturbed with the number of cuts proposed for the NOAA budget, particularly in fisheries and coastal zone management. I will focus on the marine sanctuaries program, however.

The benefits of sanctuaries research and education have been seriously undervalued in recent years. I have appended a brief summary of such research to my written testimony. As the sanctuaries program progresses, these benefits become increasingly important. Indeed, research and education are among the most crucial areas of growth for the sanctuaries program at this time, and for this reason, among others, we urge increasing the authorization levels for the program to $3.5 million in fiscal year 1984, $4 million in fiscal year 1985, and $4.5 million in fiscal year 1986.

Without adequate funding for research and education, the sanctuaries program will become nothing more than regulations and management. This would be a tremendous loss. As you are no doubt aware, concerns continue to be expressed about the program. There are two principal concerns.

The first is the types and levels of human activities which are to be allowed in sanctuary areas. The second is the full involvement of fishermen, industry, Federal, State, and local agencies, and the general public in the review of sanctuary proposals.

Briefly, fishermen's groups in Alaska and Maine have been concerned that they were not sufficiently consulted during the recent site selection process.

We wish to point out that this process is only the initial step in the very long process of review of sanctuary proposals. However, since we ourselves believe that the sanctuary process must insure full public participation, we do support reasonable measures which might be taken to see that fishermen are more directly involved in future stages of the review process.

We support, therefore, the suggestion that the Commerce Department be required to consult with the appropriate regional fishery management council and with appropriate State officials during the designation process.

Continued expression of concerns about the implementation of the national marine sanctuaries program is, no doubt, troubling. However, amending title III, as has been suggested in some quarters, in order to address such concerns should only be undertaken with utmost caution.

It is clear from early House and Senate reports on title III that the primary concern of the marine sanctuaries program should be protection of certain marine areas. Indeed, the House report makes it clear that insulation of important marine areas from intrusive activities of man is to be the primary purpose of sanctuary designation. The Senate report also emphasizes research.

Nonetheless, the vague expression of the sanctuary program's purpose in section 302(a) has encouraged continuing debate. We believe that this is the primary cause for the concerns expressed by user groups and conservationists alike about the progress of the program. I wish to suggest a change of perspective on the program: Rather than being reactive it should be progressive. We will be submitting for the record at a later time draft language amending title III which will accomplish these ends.

To summarize, the national marine sanctuaries program should have as its goal the identification and protection of nationally significant marine areas for their recreational, ecological, historical, geological, or esthetic values. Sites of national significance would be those which are of exceptional quality or value in illustrating or interpreting the ocean heritage of our Nation.

In reviewing sites, the Secretary of Commerce would be directed to consider those sites which, among other things, will provide the greatest public benefit in terms of resource protection, education, and research. The primary purpose for the designation of any sanctuary would be to insure protection and comprehensive management of the resources which make the area nationally significant.

Other purposes would include the coordination of research, the enhancement of public awareness, and the encouragement of optimum compatible public and private use of sanctuary areas.

It is imperative that we establish a system of sanctuaries for several reasons. I will mention only two. First, it is no less true today than it was in 1972, when Congress first passed title III, that human activities in the coastal zone are increasing. If we do not act with deliberate speed in providing a buffer of protection for a small but significant segment of our coastal waters, we will always be in a position of reacting to the same degradation which has marked the disappearance of many of our Nation's estuaries.

Second, our ignorance of the physical and biological processes which make our coastal waters as productive as they are is still staggering. At a time of increasing development, we must develop the knowledge necessary to manage human activities in such a manner as will permit the long-term productivity of our coastal waters.

We wish to turn to another suggested approach for placing the marine sanctuaries program on a firmer basis. A bill has been introduced in the House which would require that sanctuaries be designated only by an act of Congress. While we can appreciate the concern reflected in this approach, we do not believe it will efficiently achieve its ends, although it does provide a useful basis for discussion.

I will mention three basic reasons for our position. First of all, congressional designation would create another layer of review for sanctuary proposals. This review would come at a time when interested parties, Federal, State, and local agencies would already have expended considerable resources over several years in identifying and resolving conflicts.

If the approval of national parks is any indication, congressional review at this stage would add another 2 to 3 years to a designation process which already takes as long as 4 years. I have appended a description of the full administrative process on the review of the designation of the foremost recent sanctuaries.

Second, given that clear guidelines are provided for the program, such as we have suggested, congressional designation, we believe, would be duplicative. By removing the current ambiguity regarding the goals and purposes of the program, there would be no room for confusion over congressional intent. If the program has misinterpreted these guidelines in a given case, Congress may exercise legislative review provisions of title III.

Third, congressional designation would not provide the benefits which some user groups think it might. Simply put, there are no assurances that Congress would decide upon user conflicts any differently than the executive branch.

We wish to suggest an alternative to insuring that the sanctuaries program carries out congressional intent. Besides writing guidelines into title III, Congress could direct the Commerce Department to provide the authorizing committees with a report documenting the next several sites which Commerce will have under active consideration.

Such a report would be forwarded to the authorizing committees before reauthorization hearings so that Congress could review the proposed sites during the reauthorization process. Interested parties could make their views known to the authorizing committees, and Congress could provide its views on individual sanctuaries at an early stage in the process where those views would be most productively incorporated into the designation process.

This would insure that Commerce does not spend a great amount of its resources in working up designation packages which do not reflect congressional intent. It would also create a record to which Congress can refer in considering whether to exercise the legislative veto after designation of a particular sanctuary.

Currently, if Congress wishes to exercise that veto, it must start from scratch and review an extensive administrive record without any guidance. This approach would also provide Congress with a means of judging when increases in funding may be necessary in order to insure that the program maintains active management, research and education programs at all sanctuaries.

We recognize that these hearings represent only the beginning of Congress deliberations regarding the future of the national marine sanctuaries program. We emphasize that we are eager to assist the Congress in providing a sounder basis for the program. We look forward to working with you in the coming weeks to achieve this end.

Once again, I thank you for providing us the opportunity to testify today.

[The statement follows:]

STATEMENT OF MICHAEL WEBER, MARINE HABITAT DIRECTOR, CENTER FOR ENVIRONMENTAL EDUCATION

Chairman Packwood, members of the Committee, I wish to thank you for providing the Center for Environmental Education with the opportunity to testify today on behalf of the National Marine Sanctuaries Program. I hope that our testimony today will aid the Senate in its consideration of the future of the marine sanctuaries program.

When I testified before you regarding the marine sanctuaries program two years ago, I mentioned several points which I wish to reiterate today. The first of these is that the marine sanctuaries program is a unique tool for the protection of a small, but significant part of our nation's ocean and coastal heritage. While other areas are exposed to the risks inherent in development, however well regulated, this program provides certain areas with a buffer against those risks. Thus, we can insure that there is a mix between areas primarily devoted to development and areas primarily devoted to preservation of the biological resources present.

Secondly, research conducted in marine sanctuaries not only aids in protecting the resources of the sanctuaries themselves, but broadens our understanding of marine ecosystems. This benefit will result in sounder decisionmaking in other areas. I have appended a brief summary of such research to my written testimony.

Thirdly, the sanctuaries provide foci for the education of the general public regarding the three-quarters of the Earth which is generally beyond the reach of their direct experience. Not only does such education foster familiarity which can increase their enjoyment of our nation's coasts but it also can make them aware of the critical role which healthy ocean and coastal ecosystems play in human lives.

These last two benefits have been seriously undervalued in recent years. As the sanctuaries program progresses, these benefits become increasingly important. Indeed, research and education are, we believe, among the most crucial areas of growth for the sanctuaries program at this time and for this reason, the Center for Environmental Education urges increasing the authorization levels for the program to $3.5 million in fiscal year 1984, $4.0 million in fiscal year 1985 and $4.5 million in fiscal year 1986. Without adequate funding for research and education, the sanctuaries program will become nothing more than regulations and management. This would be a tremendous loss.

As you are no doubt aware, concerns continue to be expressed about the program. There are two principal concerns: (1) the types and levels of human activities which are to be allowed in sanctuary areas, and (2) the full involvement of fishermen, industry, federal, state and local agencies, and the general public in the review of sanctuary proposals.

Regarding the multiple-use of sanctuary areas, the oil and gas industry, for instance, has consistently maintained that the program has impeded its ability to explore and develop petroleum reserves on the outer continental shelf. Yet, what I said to these subcommittees two years ago still holds true. Oil drilling prohibitions resulting from national marine sanctuary designation affect less than one-tenth of one percent of the outer continental shelf. The industry has been very successful in having its concerns addressed in this program. They successfully halted consideration of sanctuary nominations for the Georges Bank, Flower Garden Banks and the Beaufort Sea. In concert with the Department of the Interior, they also succeeded in suspending the oil drilling prohibitions at the two California sanctuaries in a legally questionable manner (CRS) and subjected these prohibitions to a lengthy and expensive regulatory impact analysis. Therefore, we submit that there is very little, if any, actual effect upon the offshore oil and gas industry from the marine sanctuaries program.

The fishing community has also expressed concerns that the designation of a marine sanctuary will preclude them from important fishing areas. Currently, only the Looe Key sanctuary regulates commerical fishing to any extent; there the use of fish traps is not allowed within sanctuary boundaries. To our knowledge, this prohibition, which will eliminate the very damaging effect of "ghost traps" upon fish within the sanctuary, has not proved to be burdensome.

Fishermen's groups in Alaska and Maine have been concerned that they were not sufficiently consulted during the recent Site Selection Process. We wish to point out that this process is only the initial step in a very long process of review of sanctuary proposals. Similar concerns were expressed by California fisherman when the proposals for the two California sanctuaries first surfaced. As they have gained greater experience with the program, these fishermen have become supporters of the program and have recognized it as a means of providing protection of habitat critical to commercial fisheries.

However, since we ourselves believe that the sanctuary designation process must insure full public participation, we do support reasonable measures which might be taken to see that fishermen are more directly involved in future stages of the review process. We suggest, for instance, that the Commerce Department be required to consult with the appropriate Regional Fishery Management Council during the designation process.

Furthermore, we urge the Commerce Department to review the process with a view to improving public participation. We believe most federal programs suffer from public participation procedures which are outdated and marginally effective. Improvements in the means by which the sanctuaries program keeps the public informed of its plans may well benefit these other programs.

Lastly, the conservation community has been concerned that the program's progress has been jeopardized by continuing attacks. We are very troubled by the premature termination of the Site Selection Process in Alaska. While we agree that the

Site Selection Process in this largest of the eight regions should have been conducted with greater care, we do not believe that the review of Alaska sites should be delayed until all other sites have been designated or eliminated, as the Department of Commerce has indicated.

The sanctuary designation process and the record of the program itself amply demonstrate that opportunities for participation in the designation process by interested parties are extensive. Each proposal, including those developed under the Site Selection Process, undergoes no less than four stages of review by industry, federal, state and local agencies and the general public. There is obviously no assurance that any interest group will obtain all that it wants from a sanctuary designation. Nor is there any means by which any user group might be given such an assurance. Placing the interests of any group above the primary goal of sanctuary designation—the preservation or restoration of marine areas—would be in violation of Congressional intent.

As noted earlier, this process has led to the elimination of several sites which had been under active consideration for marine sanctuary designation. This indicates to me that the process is working. Furthermore, no sanctuary has been designated without the active support of state and local governments, including those agencies with responsibility for fish and wildlife within territorial waters. There are few federal programs which have been as responsive to state concerns.

The program has recognized that there is a need to eliminate the confusion which arose regarding the status of sites on the list of recommended areas (LRA). The resulting Site Selection Process is a significant improvement over previous means of developing a list of candidate sites. There is no doubt that everyone who is interested in the sanctuaries program has a much clearer idea of the reasons for which the program might consider any particular site in the future. Under the LRA process, very few people outside of the program knew anything at all about any site on the LRA much less which sites were on the list. The new process certainly has alerted interested parties to what the sanctuaries program is considering in the way of future sites. The sanctuaries program office will be soliciting further public comment upon their recommendations for sites to include on the final Site Evaluation List. We emphasize that even when a site is finally listed on the Site Evaluation List, it will still undergo three stages of public review before a decision is made whether or not to designate the site as a sanctuary or not.

Continued expression of concerns about the implementation of the National Marine Sanctuary Program is no doubt troubling. However, amending Title III in order to address such concerns should only be undertaken with the utmost caution.

The recent Congressional Research Service study of the program provides a good starting point for this. As the Congressional Research Service noted in its conclusions:

"The National Marine Sanctuary Program has undergone a complex evolution of both Congressional intent (evidenced in the original Act and subsequent reauthorization and amendment) and Administrative conduct (evidenced in the variety of statements of goals, purposes, mission, and philosophy of this program)." p. 34.

The marine sanctuaries program was established in response to several dramatic incidents of marine pollution resulting from industrial activity. Thus, Congress emphasized the preservation or restoration of marine areas in passing Title III. Together with the early coupling of sanctuaries with moratoria on mineral exploration on the outer continental shelf, this emphasis has forced the program to appear largely reactive. As a result, the program has been in the midst of controversy after controversy.

Well before the establishment of the sanctuaries program under Title III of the Marine Protection, Research and Sanctuaries Act of 1972, Congress struggled with setting guidelines for human uses of sanctuary resources. While the legislative history of Title III makes clear that multiple uses are to be allowed in sanctuaries, it is equally clear that the primary focus of the program is to be resource protection.

In discussing H.R. 9729, which served as the basis for Title III, the House Report stated that:

"Title III deals with an issue which has been of great concern to the Committee for many years: the need to create a mechanism for protecting certain important areas of the coastal zone from intrusive activities by man. This need may stem from the desire to protect scenic resources, natural resources or living organisms: but is not met by any legislation now on the books . . . . The pressures for development of marine resources are already great and increasing. It is never easy to resist these pressures and yet all recognize that there are times when we may risk sacrificing long-term values for short-term gains. The marine sanctuaries authorized by this bill would provide a means whereby important areas may be set aside for protection and may thus be insulated from the various types of "development" which can destroy them." (H.R. Rep. No. 351, 92d Cong., 1st Sess. (1971)).

The Senate Commerce Committee supported this intent in its report on Title III: "The [Senate Commerce] Committee believes that the establishment of marine sancturies is appropriate where it is desirable to set aside areas of the seabed and superjacent waters for scientific study, to preserve unique, rare, or characteristic features of the oceans, coastal and other waters, and their total ecosystems. In this we agree with the members of the House of Representatives. Particularly with respect to scientific investigation, marine sanctuaries would permit baseline ecological studies that would yield greater knowledge of these preserved areas both in their natural state and in their altered state as natural and manmade phenomena effected change." (Senate Rep. No. 451, 92d Cong., 1st Sess. (1971)).

It is clear from these statements that the primary mission of the marine sanctuaries program is to be the protection of certain marine areas. Indeed, the House Report makes it clear that insulation of important marine areas from intrusive activities of man is to be the primary purpose of sanctuary designation. The Congress also clearly understood that it was important to resist sacrificing long-term values for short-term gain.

Nonetheless, the vague expression of the sanctuary program's purpose in Section 302(a) has encouraged continuing debate. We believe that this is the primary cause for the concerns expressed by user-groups and conservationists about the progress of the program. Amplifying Congressional intent regarding the goals, purposes and criteria of the program will provide the basis for a steadier development of the program. This will also lead to a more predictable product at the end of the designation process.

We will be submitting for the record at a later time draft language amending Title III, which will accomplish these ends. To a large extent, we have based this language upon the sanctuary program's Program Development Plan, since this plan is the result of considerable research regarding approaches to the identification, conservation and use of special marine areas. To summarize, the national marine sanctuaries program should have as its goal the identification and protection of nationally significant marine areas for their recreational, ecological, historical, geological, or esthetic values. Sites of national significance would be those which are of exceptional value or quality in illustrating or interpreting the ocean heritage of our Nation. In reviewing sites, the Secretary of Commerce would be directed to consider those sites which, among other things, will provide the greatest public benefit in terms of resource protection, education and research. The primary purpose for the designation of any sanctuary would be to assure protection and comprehensive management of the resources which make the area nationally significant. Other purposes would include the coordination of research, the enhancement of public awareness, and the encouragement of optimum compatible public and private uses of sanctuary areas.

It is imperative that we establish a system of sanctuaries for several reasons. First, the variety of our Nation's social waters is as much a part of our heritage as is the variety of our terrestrial areas. We have a duty to future generations to conserve a legacy of this variety. Second, it is no less true today than it was in 1972 when Congress first passed Title III that human activities in the coastal zone are increasing. If we do not act with deliberate speed in providing a buffer of protection for a small but significant segment of our coastal waters, we will always be in a position of reacting to the same degradation which has marked the disappearance of many of our Nation's estuaries. Third, our ignorance of the physical and biological processes which make our coastal waters as productive as they are is still staggering. In a time of increasing development, we must develop the knowledge necessary to manage human activities in such a manner as will promote the long-term productively of our coastal waters. Finally, as the Nation's citizens move increasingly to coastal areas, it is of considerable importance that they be made aware of the richness of the Nation's coastal heritage.

We wish to turn to another suggested approach for placing the marine sanctuaries program on a firmer basis. We understand that a bill has been introduced in the House which would require the sanctuaries be designated only by an Act of Congress. While we can appreciate the concern reflected in this approach, we do not believe it will efficiently achieve its ends.

First of all, Congressional designation would create another layer of review for sanctuary proposals. This review would come at a time when interested parties, federal, state and local agencies would have already expended considerable resources over several years in identifying and resolving conflicts. If the approval of national parks is any indication, congressional review at this stage would add another two to three years to a designation process which already takes as long as four years. I have appended a description of the full administrative process and a review of the designation of the four most recent sanctuaries.

Secondly, given that clear guidelines are provided for the program, such as we have suggested, Congressional designation would be duplicative. By removing the current ambiguity regarding the goals and purposes of the program, there would be no room for confusion over Congressional intent. If the program has misinterpreted these guidelines in a given case, Congress may exercise the legislative veto provisions of Title III.

Thirdly, Congressional designation would not provide the benefits which some user groups think it might. Simply put, there are no assurances that Congress would decide upon user-conflicts any differently than the executive branch. Furthermore, because designation of a sanctuary would be a legislative act, user groups which might dispute the final designation would not be able to seek relief in the federal courts.

Finally, Congressional designation would not insure a sounder basis for funding the program. Authorization and appropriation for individual sanctuaries would increase the opportunity both to decrease or eliminate funding and to maintain or increase funding. We do not see that this differs much from the current situation, except that it would prevent the program from maximizing the effectiveness of reduced funding by allocating monies among sanctuaries.

We wish to suggest an alternative to insuring that the sanctuaries progam carries out congressional intent. Besides writing guidelines into Title III, Congress could direct the Commerce Department to provide the authorizing committees with a report documenting the next ten sites which Commerce will have under active consideration. Such a report would be forwarded to the authorizing committees before reauthorization hearings so then Congress could review the proposed sites during the reauthorization process. Interested parties could make their views known to the authorizing Committees, and Congress could provide its view, on individual sanctuaries at an early stage in the process where those views would be most productively incorporated into the designation process. This would insure that Commerce does not spend a great amount of its resources in working up designation packages which do not reflect congressional intent. It also would create a record to which Congress can refer in considering whether to exercise the legislative veto after designation of a particular sanctuary. Currently, if Congress wishes to exercise the legislative veto, it must start from scratch and review an extensive adminsitrative record without any guidance. This approach also would provide Congress with a means of judging when increases in funding may be necessary in order to insure that the program maintains active management, research and education programs at all sanctuaries. Finally, our suggested approach would see to it that the program does not falter because a particular adminsitration does not see fit to suggest areas for sanctuary designation.

We recognize that these hearings represent only the beginning of Congress deliberations regarding the future of the National Marine Sanctuaries Program. We emphasize that we are eager to assist the Congress in providing a sounder basis for the program. We look forward to working with this Committee in the coming weeks to achieve this end.

Once again, I thank you for providing us the opportunity to testify in support of the National Marine Sanctuaries Program. I would be happy to answer any questions you may have.

CURRENT RESEARCH IN NATIONAL MARINE SANCTUARIES

An important part of every sanctuary management plan is the resource studies plan. This plan is developed to encourage research within a given sanctuary. The studies plan identifies two research goals:

(1) To provide opportunities for improved understanding of the marine environment, and

(2) To improve management techniques by providing information on management effectiveness, the effects of human activities, and other use-oriented topics.

Through continual research, monitoring and environmental assessment, we will gain new insight into the management of marine areas.

CHANNEL ISLANDS NATIONAL MARINE SANCTUARIES

(1) Pinniped Population Dynamics Monitoring.—This study will establish an automated data management system for monitoring pinniped population dynamics. The system will provide a long-term base on natural population fluctuations that may be

distinguished from disturbances due to human activities. The initial data is being collected by periodic aerial surveys and ground/boat verifications of the aerial photographs.

(2) Natural Resource Monitoring Data Management System.—An automated data management system is being developed at the sanctuary for easy storage, retrieval and production of hard-copy reports describing the abundance, distribution, reproduction, population dynamics and other aspects of the diverse number of plants and animals in the sanctuary. Data basis have been established and the computer hardware is now in place.

(3) Visitor Survey.—Analysis of the first year's data shows that the aerial survey method is economically feasible only in areas of high visitor use. The survey monitors boating activity in the sanctuary to determine its level of disturbance of marine life. Information on the number, distribution and types of boats in the sanctuary will be available. This will aid managers in apportioning personnel for visitor services and enforcement of regulations.

(4) Monitoring Selected Seabird Populations.—Information from this study will help sanctuary managers evaluate changes in seabird populations in relation to human activities. Population distribution studies will help determine the tolerance levels of seabirds to increased disturbances by human activities. The information will assist the sanctuary managers with decision-making regarding the need for site-specific distances between visitors and seabirds and other problems relating to human/seabird interactions. Field monitoring has begun, using aerial photogrammetry ground surveys.

(5) Pinniped Interactions.—There are three objectives to this study: (1) to document the natural movement pattern and hauling behavior of individual harbor seals and to determine how much variability exists between age and sex classes, (2) to determine how human disturbances affect behavior and movement patterns, and (3) to determine correction factors for beach counts of hauled out harbor seals that will allow estimates of the entire population to be made. The first year of monitoring shows that the study is economically feasible only in areas where many pinnipeds return to haul out. These specific areas will continue to be monitored for pinniped activity.

(6) Food Habits of Pinnipeds Within the Channel Islands Sanctuary.—This research, coordinated with the previous study, will determine the critical pinniped feeding areas in the sanctuary, and the duration of the average feeding cycle in these feeding areas. The study will also involve radio-tracking to obtain dive profiles. Animals will be monitored from aircraft or surface vessels.

Two species are initially being studied, the California sea lion and harbor seal, because their populations are thought to be increasing. Due to this increase, changes in distribution and abundance of prey species are likely to occur. The study will show how population levels and other components of the ecosystem are responding to change.

POINT REYES/FARALLON ISLANDS NATIONAL MARINE SANCTUARY

(1) Assessment of Aquatic Bird Abundance and Trophic Relationships Within the Estuaries and Lagoons of the Point Reyes/Farallon Islands Sanctuary.—Shorebirds are an important indicator of estuarine health because they feed on invertebrates that live in the tidal flats. Much information has been gathered over the past 15 years, yet it was never analyzed for Sanctuary use. This study will make assessments, based on old and new data, of the abundance, habitats, and trophic relationships of these aquatic birds, that is needed for management and protection purposes.

(2) Ecological Organization of a Subarctic Breeding Seabird Community in the Point Reyes/Farallon Islands Sanctuary.—Previously there has been no study to interrelate the breeding behavior and feeding ecology of seabirds. This study will analyze information on reproduction, biology and annual fluctuations, on dispersal and survival, foraging behavior and diet, to determine the link between breeding biology and feeding ecology. The information is vital to sound management of the Sanctuary.

(3) Pinnipeds Along the Point Reyes Coast.—Four species of pinnipeds are being studied—harbor seal, northern sea lion, California sea lion and northern elephant seal. Information is being gathered on distribution and reproductive success at various locations and seasonal use relative to tidal and seasonal weather conditions. Other areas of interest include feeding habitats and effect of human disturbances. Pinnipeds are counted on a semi-monthly basis, with periodic all-day censuses with hourly counts. This study will provide more accurate methods for censusing harbor

seals and sea lions, and will aid Sanctuary managers in making management decisions for all four species regarding visitor impact and interpretive programs.

(4) Assessment of Pinniped/Human Interactions.—Due to its proximity to a large urban area, the Point Reyes/Farallon Islands Sanctuary offers a unique opportunity to study pinniped/human interaction along coast. This study will assess visitor interest in observing pinnipeds as well as visitor impact on pinnipeds as well as visitor impact on pinniped hauling out patterns. Human/pinniped interactions will be recorded during peak visitor use (weekend/holidays) once a month for a year. The results of this study will provide information on sources and location for interactions, and the extent to which pinnipeds can recover from human interaction. The study will also provide baseline information on which types of visitor activities have an impact on pinnipeds. Sanctuary managers may design interpretive programs and/or limit interactions to protect pinnipeds from unnecessary human disturbance.

(5) Intertidal and Subtidal Resource Census.—This study will provide baseline data for an ongoing monitoring program of intertidal and subtidal areas. Areas especially vulnerable to environmental disturbance as a result of present visitor use patterns and commercial activities are being identified. Using this information a monitoring plan will be developed for use in sanctuary management.

GRAY'S REEF NATIONAL MARINE SANCTUARY

(1) Assessment of Roller-Rig Trawl Impacts on Benthic Habitats.—The effects of roller-rigged trawls on live bottom communities is presently unknown. In recent years, interest in using fish trawls has increased, causing concern from commercial and recreational fishing groups, as well as management agencies. Roller-rigged trawls are also used for research purposes. This study will 1) determine the number and species of large benthic invertebrates damaged or removed from inshore live bottom habitat by fish trawling with a standard research trawl, and 2) determine the rate at which large sessile invertebrate populations grow, recover and recolonize after a research trawl operation. Information will be gathered using visual observation and trawl samples taken from outside the Sanctuary.

(2) Reconnaissance Hydrographic Survey of the Gray's Reef Sanctuary.—This study has determined the occurrence and distribution of hard bottom outcroppings within and adjacent to Gray's Reef. These outcroppings support special live communities and are the target of most user group activities. Using depth recording devices, sonar and other technical methods, regional bathymetric, topographic and shallow subbottom information has been gathered.

(3) Determining Faunal Communities Associated with Selected Sponges and Octocorals.—Little information exists on the infaunal and epifaunal invertebrate communities supported by South Atlantic sponges and octocorals. This study will investigate the type, extent and value of the contributions of sponges and octocorals to the maintenance of South Atlantic live bottom ecosystems.

(4) Field Guide to the Fishes of Gray's Reef.—Gray's Reef represents a unique interaction of northern and southern fish species. Previous guidebooks for divers have concentrated on the tropical fish, to the exclusion of northern varieties. This study will combine all species found on the reef to create a divers guidebook to the area. Data is being collected by photography and minimal sampling from outside the sanctuary boundaries. Divers will be given a questionnaire to determine a preferred format for the guidebook. A draft of the book will be submitted to other fisheries scientists for comment and suggestion before a final guide is printed.

KEY LARGO NATIONAL MARINE SANCTUARY

(1) Key Largo Coral Reef Marine Sanctuary Current Study.—Information from this study will be used to determine the circulation patterns in the Sanctuary and adjacent areas in John Pennekamp State Park and Biscayne National Park. Based on the first year's results, the number of current meters has been expanded and the study area has been increased into the areas south and north of Key Largo. This will give a better overview of circulation patterns off the Florida coast. Data from the study will be used in conjunction with water quality data to generate a water quality model.

(2) Biological Inventory and Reef Health Assessment.—To improve our understanding of the marine environment, a biological inventory is being performed on the Key Largo Coral Reef. The study will provide an analysis of reef structure, a description of organisms in major sanctuary provinces and a resource map of the area. An analysis of reef health will also be made. Reef degradation and damage to corals by anchors will also be noted.

(3) Water Quality Monitoring.—Although coral reefs are extremely sensitive to changes in water quality, little water quality data is available for the Key Largo reef area. Effective management of the Sanctuary depends in part on the ability to monitor factors that affect water quality and influence reef health. This study will analyze monthly water samples from at least 12 stations around the Sanctuary and adjacent areas. The data will be used along with current data to generate a water quality model.

(4) Key Largo Water Quality Assessment and Modeling Program.—This study will indicate whether water quality changes are occurring, what they are, why they are occurring and the source responsible for the change. A mathematical model will be developed which is capable of simulating the behavior of the environment under stress. Information from the current study, water quality monitoring and the modeling program will provide Sanctuary managers with a method to detect early warning signs in a possibly deteriorating environment so that timely management decisions can be made.

(5) Epizootiology of Malignant Tumors of the Bicolor Damselfish within the Looe Key and Key Largo Coral Reef.—This study investigated the origins and transmission patterns of disease in reef fish populations, and attempted to relate environmental variables to fish health. Focusing on the distribution of a malignant disease tumor in the bicolor damselfish, the study determined a relationship between the disease and environmental factors, such as reef location and structure, water quality and other marine life. Based on first year data, there is a trend in disease intensity: greater in Key Largo area than at Looe Key.

(6) Mooring Buoy Study.—A significant problem at Key Largo involves anchoring of boths in the Sanctuary. Although anchoring on the coral is prohibited, many boaters are inexperienced and unintentional damage to coral results. The initial study served to design a buoy system that would be nondetrimental to the reef. Commonly, buoy systems use a chain to attach the buoy to a weight. The chain chafes the bottom and injures the reef. At Key Largo, managers have developed a system using stainless steel pins, with an eyebolt cored into the bedrock. The eyebolt is cemented into place and a polypropylene line is run up to the buoy. Boaters simply tie into a line on the buoy. There are presently 40 buoys installed throughout the Key Largo Sanctuary and the system has proved to be a big success. The second part of the study involves an evaluation of the system's utility and maintenance.

LOOE KEY NATIONAL MARINE SANCTUARY

(1) Effects of Predator Removal on Reel Fish Community Structure.—This research will examine the effects of reduced human exploitation on the coral reef fish community structure. Specifically, the investigation has shown that predator fish populations are significantly smaller on reefs impacted by spearfishing than on non-harvested reefs. This study will quantitatively test a predator model to document changes that occur in the Looe Key as the result of sanctuary protection. Research results show major faunal differences among non-target species. This indicates that spearfishing has a considerable indirect effect on coral reef communities. In addition, results show that spearfishing affects coral reef fish behavior: the fish will leave a spearfishing area or become less approachable.

(2) A study of Three Selected Groups of Invertebrates at Looe Reef.—This study will focus on certain of the smaller invertebrates inhabiting the coral reef. These organisms respresent an ecologically important aspect of the reef community. The study will detail three very different patterns of life on the coral reef that may be used as models for management purposes and additional investigations.

PUBLIC PARTICIPATION IN THE MARINE SANCTUARY DESIGNATION PROCESS

Under the current designation process, the public, user groups, local and state governments and federal agencies have no less than four opportunities to participate in the decisionmaking process. In addition, Congress may veto designations after the completion of the process. Several proposed sanctuaries, including proposals for Georges Bank, Flower Garden Banks, St. Thomas in the Virgin Islands, and the Beaufort Sea, have been dropped from active consideration in the course of this process.

Under the current designation process, any future sanctuaries will have to undergo several levels of review. Under the Site Selection Process, which the Commerce Department is currently conducting, a series of sites will be recommended by teams of scientists in each of eight regions. These sites have been submitted for public comment. The teams will go over the comments and forward to Commerce their final recommendations. Each team may nominate up to five sites per region. Commerce will then select from this list sites which will make up a draft Site Evaluation List. This draft list will be sent out for public comment before being finalized.

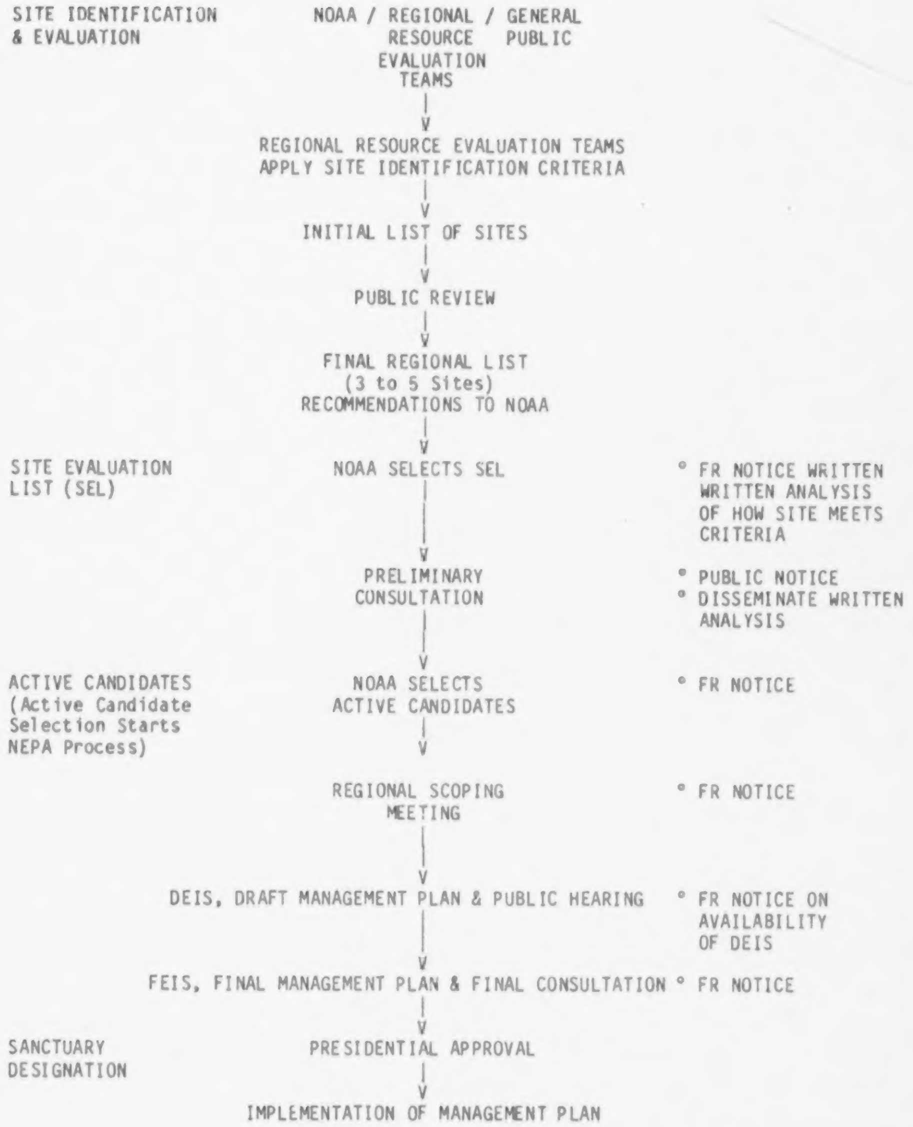
If the Commerce Department wishes to actively consider any one of the sites on the Site Evaluation List, it will prepare an issue paper regarding the site. This issue paper will be subject to public comment. Provided that the public review supports moving ahead with the proposal, the Commerce Department will then prepare a draft environmental impact statement, obtain public review, prepare a final environmental impact statement, and obtain reviews from other federal agencies and the public. Then the Commerce Secretary must seek the approval of the President. Once this is done, the governor of an affected state may veto those provisions of a sanctuary designation which apply to state waters and Congress may veto all or parts of the designation.

As the table below shows, sanctuary designation is already a time-consuming process.

	Date
Channel Islands:	
Recommended by Resources Agency of the State of California	1977.
Public workshop on proposal	April 1978.
Formally nominated by the county of Santa Barbara	June 1978.
Issuance of issue paper	December 1978.
California Coastal Commission hearings	March 1979.
Circulation of designation options	June 1979.
Issuance of DEIS	November 1979.
Public hearings on DEIS	January 1980.
Issuance of FEIS	June 1980.
Designation of sanctuary	September 1980.
Looe Key:	
Nominated by Florida Keys Citizens Coalition	November 1977.
Workshop on issue paper	January 1978.
Scoping meeting on draft EIS	October 1979.
Issuance of DEIS	May 1980.
Public hearings on DEIS	June 1980.
Issuance of FEIS	November 1980.
Designation of sanctuary	January 1981.
Gray's Reef:	
Nominated by Coastal Resources Division of the Georgia Department of Natural Resources.	June 1978.
Circulation of nomination	July 1979.
Workshop on issue paper	November 1979.
Scoping meeting on DEIS	January 1980.
Issuance of DEIS	May 1980.
Public hearings on DEIS	July 1980.
Issuance of FEIS	November 1980.
Designation of sanctuary	January 1981.
Point Reyes/Farallon Islands:	
Recommended by Resources Agency of the State of California	1977.
Public workshop on proposal	April 1978.
Issuance of Issue Paper	December 1978.
California Coastal Commission hearings	March 1979.
Circulation of designation options	October 1979.
Public meeting on designation options	November 1979.
Issuance of DEIS	March 1980.
Public hearings on DEIS	May 1980.
Issuance of FEIS	October 1980.
Designation of sanctuary	January 1981.

FIGURE 1

NOMINATION/DESIGNATION PROCESS


SITE IDENTIFICATION & EVALUATION
NOAA / REGIONAL / GENERAL
RESOURCE PUBLIC
EVALUATION
TEAMS
REGIONAL RESOURCE EVALUATION TEAMS APPLY SITE IDENTIFICATION CRITERIA
INITIAL LIST OF SITES
PUBLIC REVIEW
FINAL REGIONAL LIST (3 to 5 Sites) RECOMMENDATIONS TO NOAA
SITE EVALUATION LIST (SEL)
NOAA SELECTS SEL
° FR NOTICE WRITTEN
WRITTEN ANALYSIS OF HOW SITE MEETS CRITERIA
PRELIMINARY CONSULTATION
° PUBLIC NOTICE
° DISSEMINATE WRITTEN ANALYSIS
ACTIVE CANDIDATES (Active Candidate Selection Starts NEPA Process)
NOAA SELECTS ACTIVE CANDIDATES
° FR NOTICE
REGIONAL SCOPING MEETING
° FR NOTICE
DEIS, DRAFT MANAGEMENT PLAN & PUBLIC HEARING
° FR NOTICE ON AVAILABILITY OF DEIS
FEIS, FINAL MANAGEMENT PLAN & FINAL CONSULTATION
° FR NOTICE
SANCTUARY DESIGNATION
PRESIDENTIAL APPROVAL
IMPLEMENTATION OF MANAGEMENT PLAN

[The following information was subsequently received for the record:]

Questions of Senator Hollings and the Answers Thereto

Question. As a number of observers have noted, communication problems have posed the main obstacle to the progress of the Marine Sanctuaries Program. The vague description of the program's regulating responsibilities causes anxiety among fishermen over continued fishing rights, and poor presentation to the public concerning the purpose of the site selection processes has resulted in unnecessary opposition to the entire program.

Does the law currently authorize a ban on all commercial fishing in a marine sanctuary, even if fishing has traditionally been conducted in the area? If so, how can that authority be altered without weakening the objectives of the Program?

Answer. There are no blanket regulations affecting any human activity in all marine sanctuaries. Section 302(f)(2) of the Marine Protection, Research and Sanctuaries Act of 1972 instructs the Secretary of Commerce to "issue necessary and reasonable regulations to implement the terms of the designation and control the activities described in it. . . ." Regulations may be issued only for those activities identified as subject to regulation in the document designating the sanctuary under Section 302(f)(1). To this extent, fishing activity may be regulated within a particular National Marine Sanctuary.

Currently, only certain types of commercial fishing activity are not permitted in certain marine sanctuaries. At the Looe Key sanctuary, the use of wire fish traps or lobster traps within the Fore Reef area of the Sanctuary is not allowed (15 CFR 937.6(a)3). At the Gray's Reef Sanctuary, wire trap fishing and bottom trawling are prohibited (15 CFR 938.6(a)4 and 5).

In both cases, these regulations were adopted only after extensive review. To my knowledge, commercial fishermen in these two areas have not been adversely affected by the prohibitions on certain types of fishing activity. Regulations at the other Sanctuaries do not directly affect commercial fishing activity.

The primary emphasis of the program must be resource protection. Secondarily, the program should strive to encourage uses of sanctuary resources which are compatible with the protection of those resources. To exempt a harmful fishing activity from regulation within a Sanctuary because it was traditional would conflict with this ordering of priorities and would undermine the program.

We submit that the concerns raised by commercial fishermen, particularly in Alaska and Maine, can best be addressed by providing an assurance that their concerns will be taken into account early in the process of reviewing particular sites for sanctuary designation. For this reason, we support Senator Cohen's suggestion that the Secretary of Commerce be required to consult with the appropriate regional fishery management council and State authorities responsible for fisheries management early in the process.

Question. In your testimony you indicate you are preparing draft statutory changes to Title III.

When do you expect to be submitting such language to the Congress? How do you expect your language to alleviate the fears of commercial fishermen?

Answer. As mentioned earlier, I would expect that the early involvement of the appropriate regional fisheries management council and the State agency responsible for fishery management would alleviate the concerns of commercial fishermen. I hasten to note that commercial fishermen have not been materially affected by any of the current Sanctuaries.

I believe that H.R. 2062, introduced by Congressmen D'Amours and Pritchard recently, is a good basis for amending Title III. While other sections of this bill are useful, I believe that the crucial elements are as follows:

(a) *Section 301(b)—Purposes and Policies.*—I would alter 301(b)1 to read: "*to provide for the conservation of special marine areas*, by identifying marine environments of special significance due to their conservation, recreational, ecological, historical, research, educational or esthetic value;"

I would also alter 301(b)2 to read: "to provide authority for comprehensive areawide management of these environments which will complement existing regulatory authority in order to *conserve* sanctuary resources;"

(b) *Section 303(a)—Standards.*—I would include the factors listed in Section 303(b)1A–G in Committee Report language clarifying the findings set out in Section 303(a)1–3.

(c) *Section 303(b)2—Consultations.*

(d) *Section 304(b)1—Designation Procedures.*

(e) *Section 306—Research and Education.*

(f) *Section 307—Annual Report on Areas Being Considered for Designation.*

Other sections of the current Title III, such as those concerned with Congressional disapproval, enforcement and regulations, might stand as they are.

Question. The use of the term "sanctuaries" in the statute seems to stir up some of the concern about the marine sanctuary program.

Do you believe it would be helpful to use another term in its place? If so, what word would you use?

Answer. It may well be helpful to use a term other than sanctuary, although changing the title of the program at this time may only lead to further confuson. Of the titles which I have heard suggested, "marine reserve" is the best in my opinion.

Question. It has been argued that oil and gas activities should not be prohibited on a site unless such a ban is explicitly necessary to preserve the unique character of the site.

Do you agree with this viewpoint? If not, please describe your reasons.

Answer. First of all, it is not clear to me what "explicitly necessary" means. Any decision to allow or prohibit any activity, whether or not in a marine sanctuary, must depend to a greater or lesser extent upon a judgment as to whether the activity is compatible with other uses of the area, such as conservation, research, commercial fishing. The Secretary of Commerce is directed to make such judgment under Title III, bearing in mind that the primary purpose of sanctuary designation is the preservation or restoration of sanctuary areas. As it is, the oil drilling prohibitions at the two California sanctuaries were the subject of extensive review, including a regulatory impact analysis. Based upon this extensive record, both the Secretary of Commerce and the President decided that the prohibitions would best meet the statutory requirements of Section 302(f)(2).

In our view, the emphasis of the marine sanctuaries program on resource protection is crucial to any such discussion. Risks which might be tolerable in other areas might not be tolerable in sanctuary areas. The risks arising from potential oil spills and from the routine discharge of materials from drill rigs should not be tolerated where sanctuary resources might be adversely affected.

As I noted in my testimony, the oil and gas industry has not been materially affected by the National Marine Sanctuary Program, although it has expressed fears that it might be.

Question. What criteria do you believe should be used to determine whether those oil and gas operations will be prohibited in a marine sanctuary?

Answer. The principal criterion which should be used in making such a determination is the degree of risk which oil and gas operations pose to vulnerable resources within a proposed sanctuary area. Such resources would include endangered and threatened species, unique assemblages of biota, commercial or recreational species vulnerable to oil or routine discharges, esthetic resources. While a cost/benefit analysis of such regulations might be helpful, the difficulty of identifying the value of healthy ecosystems or non-commercial species necessarily results in the skewed analysis.

Senator GORTON. Mr. Weber, what kind of uses which are normally appropriate in the marine area are prohibited by the area's designation as a sanctuary?

Mr. WEBER. There are no blanket prohibitions under the sanctuaries program for all sanctuaries. If there are prohibitions, they are tailored to the resources of the individual sanctuary. At Looe Key, for example, there is a prohibition on the use of fishtraps because there was an occurrence of traps that had lost their bouys and basically kept feeding on fish.

There are oil drilling prohibitions at the Channel Islands and Point Reyes Sanctuary and in other areas; at Looe Key there is a prohibition on spear fishing because of the effect that it has on the reef community.

But each of the regulations are tailored to the particular site. There are no blanket regulations.

Senator GORTON. And does the Governor of the State have a veto over the designation of a particular area of the sanctuary if it is within State waters or the 3-mile limit?

Mr. WEBER. That is true.

Senator GORTON. Isn't one of the problems that the Governor either must decide to exercise or not exercise that veto before he and the people of his State have knowledge of what the restrictions on the use of the sanctuary will be?

Mr. WEBER. Well, I should note that all of the sanctuaries that have been designated so far have enjoyed considerable State support all the way up to the Governor's office. Indeed, most of the sanctuaries have been proposed by State governments so far. And in the NEPA process State officials are involved quite extensively, so there is a great deal of awareness of any particular sanctuary well before it is designated.

Senator GORTON. There was a great deal of concern in the State of Washington when the first half-dozen sanctuary areas were proposed, partly because no one understood that this even was going on, and second, because there was no way to outline in advance what restrictions would be placed on those sanctuaries. Third, because of this process, it looked as though a sanctuary might be created and the restrictions come thereafter.

Is there any cure for those problems or those apprehensions?

Mr. WEBER. I don't believe there is any particular cure for that. I would note that what occurred in Washington and in other States, such as Maine and Alaska, did not occur everywhere in the process. Second of all, as I have emphasized, this is a very, very early stage of the process and I think NOAA is fully aware that they have to more actively involve State and local governments and the user groups in the process.

Senator GORTON. Mr. Spaulding, would you like to respond to the same question?

Mr. SPAULDING. That is, how could the regulations be better understood by the people that are affected by them beforehand?

Senator GORTON. Yes.

Mr. SPAULDING. It is my impression on reading the statute and by experience that NOAA prescribes the regulations and then there is a period for comment thereafter, and, as a consequence, I think everyone will have the opportunity of providing those comments within that specific period.

Senator GORTON. I think the thrust of the concern in my own State was that that did not occur, of course, until after a sanctuary had been designated and that people could not intelligently respond to the proposal to designate a sanctuary in the absence of knowing what the use restrictions on that sanctuary would be.

Mr. SPAULDING. And the same occurred with respect to the Santa Barbara/Channel Islands Marine Sanctuary as well.

Senator GORTON. Were they subject to approval by the Governor before they were created?

Mr. SPAULDING. I am sure that is the case.

Senator GORTON. And they were approved by the Governor of California?

Mr. SPAULDING. Indeed they were.

Senator GORTON. And you said that the sanctuaries program had caused drilling on existing leases within the sanctuary to be prohibited. Was that prohibited by the Federal regulations issued in connection with that sanctuary?

Mr. SPAULDING. No, that is not the case. In fact, the Federal regulations explicitly permit drilling on existing leases issued prior to the formation of the sanctuary.

Senator GORTON. So was it essentially a State decision?

Mr. SPAULDING. Yes, it was.

Senator GORTON. Could that decision have been made in the absence of the area's designation as a sanctuary?

Mr. SPAULDING. The same denial, you mean?

Senator GORTON. Yes.

Mr. **Spaulding**. Yes. There were other factors that the California Coastal Commission has used to justify the decision or denial, but it was certainly enhanced by the presence of a sanctuary.

Senator **Gorton**. Do you believe that the program has had a significant negative impact on offshore energy development?

Mr. **Spaulding**. I think generally speaking it adds another level of government to all the levels that have to be considered when applying for permits to drill, so there is a negative influence in that connection. But certainly in connection with the Santa Barbara/Channel Islands Marine Sanctuary it was clear that the sanctuary did provide the basis for issuing that denial.

Senator **Gorton**. Senator Pell is here as a member of our advisory council. We would be happy to have you ask questions, if you would like, Senator Pell.

Senator **Pell**. I have no questions and thank you very much indeed, Mr. Chairman.

Senator **Gorton**. With that, I should like to thank both of you for your thoughtful comments and your constructive suggestions.

Mr. **Spaulding**. Thank you, Mr. Chairman.

Mr. **Weber**. Thank you.

Senator **Gorton**. We now have our final panel on the sea grant program—Mr. Sleik and Mr. Wick. Would you please take your seat for the panel?

While you are getting ready, Senator Pell, who was a member of the NOPS panel, does have a statement which he would like to make.

STATEMENT OF HON. CLAIBORNE PELL, U.S. SENATOR FROM RHODE ISLAND

Senator **Pell**. Thank you, Mr. Chairman.

I congratulate you and the chairman of the full committee, Senator Packwood, on scheduling this hearing on a number of programs administered by the National Oceanic and Atmospheric Administration. I regret to say that in my view the Federal Government for the past 2 years has been on a path of neglect and retreat from both the responsibilities and the opportunities provided by an effective national ocean program.

This path has been followed, I would emphasize, despite the strong support given many of these programs by Members of Congress of both political parties, and indeed the situation would be far worse were it not for the determined efforts of Members of Congress, who believe in a strong national ocean program.

The impact on ocean policy and programs has gone beyond the budget restraints that have affected most Government departments and agencies, except for the Defense Department. In ocean programs we have seen attempts to abandon such activities as coastal zone management, the national sea grant college program, and the important functions of the National Advisory Commission on Oceans and Atmosphere.

We have seen in the international area the withdrawal from any significant U.S. role in forging an effective international agreement covering the use of the seas and the seabed. Equally troubling is the absence in the administration of any indication, at the highest levels, of concern or interest in forging an effective, cohesive national ocean policy. The emphasis has been on dismantling instead of reforming and improving what is existing.

As the original author of the legislation that established the national sea grant college program, I am particularly concerned at the administration's insistence over the course of three budget cycles that the program be disbanded.

Even though the program returns more dollars to the Government in taxes and contributes more to the gross national product it has been slated for extinction three separate times. Fortunately, the Congress has been able to stop that, and I look forward to continuing to do so, because obviously it is a good program and one that has saved the taxpayers a great many dollars.

I will be introducing later this week legislation to authorize continuation of this program, with cosponsorship from a number of my colleagues. I would hope the administration would reconsider its position, support continuation of a program which has broad support and which I understand the administration itself concedes to be successful, productive, and well administered.

I am only sorry I was not here to hear the testimony of John Byrne, for whom I have the greatest respect and admiration, and of John Knauss, my old good friend from Rhode Island, who is doing such a superb job as chairman of NACOA, and I am just very happy to be here to hear the sea grant panel. I would have been here earlier, but we had a leadership meeting at the White House. I join in welcoming Messrs. Wick and Sleik here and I am sure they share with me the hope that the administration's program or plan that sea grant be disbanded will not take place.

Senator GORTON. Mr. Wick, you may proceed.

STATEMENTS OF WILLIAM Q. WICK, DIRECTOR, SEA GRANT COLLEGE PROGRAM, OREGON STATE UNIVERSITY, AND JONATHAN SLEIK, VICE PRESIDENT, RED LOBSTER INNS OF AMERICA

Mr. WICK. Thank you, Senator Gorton and Senator Pell. My name is Bill Wick. I am from Oregon State University. I am here representing my president, Dr. MacVicar, but also the National Association of State Universities and Land Grant Colleges, and the Sea Grant Association. I am here in support of reauthorization of the national sea grant college program, which really should be no surprise.

I have submitted a written statement and would like to summarize, if that is all right, Mr. Chairman.

Senator GORTON. You certainly may, and your entire statement will be included in the record.

Mr. WICK. Thank you.

I specifically want to comment on these points. I believe that sea grant should be reauthorized; the ocean economics sector of the national economy; information on high technology and scientific and professional training; and, some specifics on the reauthorization request.

I believe that sea grant was a great idea of the Congress in 1966, that it is carefully and slowly evolving since then into a good program. It is not there yet. And it is a vital area in the 1980's for the United States.

I am one of the fortunate few to have been involved in sea grant right from the start. In fact, when sea grant became officially authorized, there were four marine extension agents in North America. I was fortunate enough to be one of those.

The network now consists of 19 sea grant colleges, which are, of course, the mature institutions, plus 10 or 12 other major programs. But it involves in those 29 or 30 programs more than 250 educational institutions in the United States. This was a surprise to me, until the sea grant group was able to gather this information just recently.

The sea grant program is now nearing maturity. It is not there yet. I am very excited about it. This is why I would like to see the program reauthorized essentially as it is, on a multiyear basis, and with sufficient funding to do the job.

As your committee and others have observed this morning and elsewhere, the sea grant program works. It is a partnership, a partnership of industry, of government at all levels, and of the university academic system toward marine research, conservation and development. The programs are tightly managed both from the national sea grant program level, within NOAA, and at the university level. They are competitive, national in scope, but locally based.

We have integrated functions. We have been talking this morning about some of those. The alchemy of integrating research with education and training, with advisory programs, and with the marine resource users of the United States is a very important part of it.

Sea grant programs, in my opinion, maintain a unique role in the national marine resources picture. This is a role not addressed by others and is nonduplicative and counterinflationary. Although we have heard otherwise in the last few years, our job is not finished. In fact, it has just begun.

The sea grant concept once more is under stress, as it has been for the last 2 years. We have heard reference this morning to the local nature of sea grant. We have not heard yet this morning that we have finished our job. I always thought that was such an interesting argument. We have done such a wonderful job in 15 years that we are finished.

The truth is, we are helping to rebuild the United States as a maritime nation. The sea grant community is optimistic about the long-term future of sea grant and we are frustrated with those who suggest we have completed the 1966 goals for the programs set forth by the Congress.

We have tried to build our message to Congress and the American people on the basis of results. The sea grant program really does work, but there are many very difficult, large problems. A few might be extended jurisdiction, for example, Outer Continental Shelf problems, Great Lakes transboundary problems, and a new one that just surfaced the last couple of weeks, the El niño phenomenon in the Pacific—the largest ever observed. We simply do not have the resources to study it.

These issues and others create new needs for sea grant products, and the sea grant products, of course, are knowledge, advisory services, and, especially, well-trained graduates.

I would like to turn now to sea grant and the ocean sector of the economy. The magnitude of the U.S. ocean economy has been sort of an elusive figure to obtain and to realize that we are just an island, as our good friend Dr. Spilhaus has advised us. The National Income Accounting System indicates that the ocean sector in 1972 amounted to about $30.6 billion. It compares favorably with agriculture, mining, and communications. Transportation and construction are substantially higher, but still in the ball park.

Ocean industries in 1978 employed 1.4 million people with an $11 billion payroll. Most ocean industries are small, evolving units—disaggregated units. Oil and gas, of course, is a major exception. Sea grant has been able to focus on working with these diverse industries. I have included several other economic analyses. I will not go through those, but the bottom line, again, is that sea grant was involved in making things happen.

I would like to spend time on technological advancement, our manpower needs, and how sea grant relates. This is a popular subject right now. It is popular in Oregon. It is popular around the country. You have to have high technology, let's get the Nation moving, and so forth. Sea grant has and is contributing. The universities' primary product, after all, is an educated and well-trained graduate.

Since 1968, sea grant has trained about 7,000 students in all the programs, primarily at the graduate level, as well as developing curricula in ocean engineering, ocean law, and other areas, and technician training at the junior college level, for example.

Turning to my own program, which I know the best, we have produced 340 people who have received graduate degrees. The top three fields were oceanography, ocean engineering, and ocean law, with substantial inputs in fisheries, seafood technology, and marine resources economics. The several sea grant programs differ slightly, in subjects and focus.

Some examples of advanced type research, I would like to mention, Senator Gorton, that at Washington the underwater acoustics problem research has led to two results. One is an increase in fishing efficiency, and the second is development of the new industry—Biosonics Inc., just for one example. Wisconsin is working on some, MIT—all of us are involved in this. And let's not forget that we are trying to bring modern technology to the fishing industry in most coastal and Great Lakes States.

I mentioned that I was one of the first four original marine extension agents. Now there are about 300 sea grant marine agents in every major coastal port in the United States and the Great Lakes—the coastal and Great Lakes States. This is a person that the local people know. Federal, State, and local programs hit the ground—or the water, in this case.

In the West, again, the Pacific sea grant college program, five sea grant colleges, have joined together to utilize their better talent to address major problems, such as how many fish can the ocean hold, for example. They are involved in biotechnology, genetic engineering, satellite work. In fact, today, Bruce Mate from our program is in San Ignacio Lagoon in Mexico attempting to put satellite-tracked tags on grey whales.

Sea grant has proved it is possible to be on the cutting edge of science while also involving American industry and the profit motive. Obviously, we applaud this burgeoning interest in high technology training, but we wonder why have been overlooked as a part of that. We are a model for these activities and I would like tc ask this committee and the administration to remember that.

Turning to reauthorization, the attachments outline the request. Three points: first, multiyear, preferably five; research and education are long-term. We cannot turn them on, turn them off. A signal must be sent to the universities, the States, and the local people that we are serious about sea grant. We have searched for alternate funding. We have had some success, but limited. In fact, since last I talked to this committee, Senator Packwood, we lost two senior sea grant faculty in Oregon. They left for presumably greener pastures.

Second, the authorization figures must reflect genuine needs and opportunities rather than immediate budget problems. We are suggesting $42 million for 1984.

I would like to say a word or two about sea grant's international program. It is a very small program but one I think is a very productive program. The marine field is largely ignored in U.S.-international efforts. Oregan State University has been a leader in work in Latin America. On Friday I received a workshop outline for May in Vaparaiso, Chile, to highlight 5 years of progress.

To finalize, Senator Packwood, the sea grant program has developed some documentation for internal and external use. I think it is the best single package telling what sea grant is, and does. I would like to leave that package with you. I think the record justifies continuation and enhancement of the national sea grant program. It is a valuable national asset. I would be pleased to answer any questions that you might have.

The CHAIRMAN. I do have one question, and I apologize for missing the bulk of your testimony. I was testifying in another committee, and the questions of the members were more extensive than I thought.

Dr. Byrne indicated it would be his hope that if we zero out sea grant funds as of October 1, 1983, that the loss to the States would be picked up by the States and by private enterprise. What do you think are the realistic possibilities of that happening?

Mr. WICK. I think your early comment was right on the mark. If you recall, in 1967 you participated in establishing the sea grant matching authorization in the State of Oregon. We have had excellent continuing support and faith on the part of the State legislature, but they simply are not capable of taking on this program. So continuation, we would hope, would be likely, but adding to it would be very difficult.

From the industry side, we are gradually learning how to work more effectively with industry. Certainly we have had excellent support there, but not of the magnitude that would do the job.

The CHAIRMAN. Senator Pell?

Senator PELL. Thank you, Mr. Chairman. Could you give me a couple of particularly strong and valid examples of the cost-benefit effects of the sea grant program where the taxpayers' dollar invested in sea grant has produced benefits that are a multiple of the cost?

Mr. **Wick**. Senator, I think, as you know, sea grant network did an analysis in 1981 which has been updated somewhat this year looking at some specific examples of projects that have paid off. I realize we are in the cost-benefit game. Fortunately, not all of our projects have to show this direct payoff basis.

There is some information in the documentation dealing with MIT and others. In our case, we have developed a very simple phosphate dip treatment for shrimp. The research cost was in the neighborhood of $30,000, as I recall. The process has now been accepted and adopted by most of the west coast shrimp industry. What this does is coagulate protein that would be lost through the washing process. It has increased the pick rate from 22 to 26 percent, as I recall. This 4-percent difference in savings from live weight to market product is a multimillion-dollar impact.

Senator **Pell**. Why don't you submit for the record some examples, if you could—not just from your institution but from your association—some of the stronger examples of where the benefits have been shown to far outweigh the original costs?

I think they would help when it comes to considering your authorization.

Mr. **Wick**. We can do that.

Senator **Pell**. Maybe half a dozen examples.

Mr. **Wick**. OK.

[The following information was subsequently received for the record:]

Partial Listing of Economic Effects of the Sea Grant College Program

SUMMARY

Estimates and analyses of parts of the Sea Grant program indicate it has led to or stimulated over $227 million in annual gross revenue or savings (cost avoidance) leading to fuller utilization and greater efficiency in marine or coastal resource based industries.[1] Not accounted for are contributions to better management of these resources. Neither do we attempt to place a monetary value on the manpower development role of Sea Grant. The latter is a major contribution to the nation's ability to use its coasts and water productively whether for commerce, food or for recreation.

Twenty-six Sea Grant Programs participated in developing the data for an analysis of economic effects. A substantial volume of background data was prepared as source information on the economic stimulation to industry, business, and commerce. The data obtained (based on fifty-seven projects) represents a few percent of the total project activity within Sea Grant. Each program selected only a few examples of documented economic effect from its research and educational efforts. The intent of this report is to provide, from a nation-wide point of view, a partial assessment of economic effects of Sea Grant's work. A summary (Table I) of the findings for eight major categories of Sea Grant research and educational activity indicates the aggregated annual effects.

Table I.—*Selected set of economic effects from the sea grant college program*

A. Fish harvesting—Increase the economic productivity of commercial shellfish, groundfish, and midwater fisheries	$36,552,410

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[1] Production costs have not been substracted. Later analysis will attempt more detailed net benefit studies of selected parts. The partial nature of this analysis should also be stressed. It is based on examples from individual programs rather than on total coverage. Hence, it is conservative.

B. Fish processing and marketing—Expand the economic base of the seafood processing industry	16,500,465
C. Aquaculture—Provide new commercial opportunities by developing the science, technology, and economic potential of aquaculture of marine species	21,752,000
D. Marine construction—Facilitate improvements in environmentally sound, economical, and safe waste disposal and offshore construction activities	126,895,771
E. Marine transportation—Increase the efficiency and safety of the U.S. shipping fleet and the competitiveness of U.S. boat manufacturers in the foreign market	2,890,000
F. Marine-related retail trade—Promote the growth of precious coral and pet turtle industries and reduce the loss of lives from cold-water drownings	19,400,000
G. Marine-related real estate—Develop new technologies for shoreline stabilization, flood control, and alternative methods of sewage treatment	2,196,000
H. Marine service industry—Reduce wave damage to marinas and find an economically feasible alternative to breakwater construction for small marinas	812,760
Total	226,999,406

SEA GRANT BENEFITS

(1) A recent study by M.I.T. researchers has shown that a 1975 investment of $23 million by the Federal Government in Sea Grant resulted in 1981 sales of about $60 million; 10 new and 25 subsidiary companies were formed; and 67 former students employed in occupations directly related to their Sea Grant research experience.

(2) Shellfish research in Maine and New Hampshire has both stimulated a new industry and increased the landings in a traditional one. Fifty small companies have been formed to grow the European oyster. Because of their quality, these oysters are already in special demand. In addition, two much larger blue mussel companies have moved to Maine to take advantage of the natural growing conditions. In the meantime, landings and marketing of wild mussels have increased more than tenfold.

(3) Sea Grant research established a new industry in Louisiana worth $70 million. Ten years of research on crawfish aquaculture--at an expense of $300,000—turned a traditional wild harvest into a thriving industry.

(4) Gulf shrimp fishermen saved about $30 million over a seven year period as a result of a Sea Grant effort to identify, catalog, and disseminate information on bottom obstructions. This also resulted in a direct taxpayer savings of $1 million since it was no longer necessary to carry out seafloor surveying under Title IV of the Fisherman's Contingency Fund.

(5) In Oregon, Sea Grant researchers have found a way to save millions of dollars annually for containerized shipping ports by developing a computerized loading plan. Sea Grant is training people to use this plan and the necessary technology; and as a result, ports in the Northwest should be better able to handle multi-million dollar projects that will mean more jobs at a time they are badly needed.

(6) As a result of research done in Michigan, by Sea Grant, on cold water drowning and on revival tips, the University of Rhode Island brought together researchers and practitioners in an international conference which emphasized the application of current knowledge to treatment and prevention. This five day conference in Rhode Island helped change medical practice with regard to hypothermia and to the American National Red Cross's reviewing its treatment. It led to increased attention to hypothermia on the part of the National Safety Council and to the generation of interest in preventative measures such as survival suits.

(7) Corrosion workshops have been held by the University of Rhode Island Sea Grant for marina and boatyard operators. It has been estimated that each person who attends and returns to his organization is able to transfer what he has learned into methods and practices which cause savings of about $5,000 per year. So far, the Sea Grant Marine Advisory Service has trained about 125 such persons for a total savings to consumers of $625,000. The Sea Grant Marine Advisory Service will continue this training in corrosion prevention.

Senator PELL. Thank you very much.

The **Chairman**. Claiborne, thank you very much. I might say that Senator Pell probably had more to do with the initiation of this program than any other single person in the Senate, and we are delighted to have him sharing the podium with us today.

Senator **Pell**. Thank you.

The **Chairman**. Bill, I don't have any other questions. Again, I apologize for missing part of your testimony. I read it last night. Again, thank you for everything you have done in the State of Oregon to make it a success over the years.

Mr. **Wick**. Thank you, sir.

[The statement follows:]

STATEMENT OF ROBERT MACVICAR, PRESIDENT, OREGON STATE UNIVERSITY

Thank you, Mr. Chairman, and good morning. My name is William Q. Wick. I am professor of Wildlife Ecology and Extension Education and Director of the Oregon State University Sea Grant College Program. I am testifying today on behalf of President Robert MacVicar of Oregon State University in support of reauthorization of the National Sea Grant College Program Act. We appreciate the opportunity to share our views with the Commerce Committee and the National Ocean Policy Study. I am representing the National Association of State Universities and Land Grant Colleges and the Sea Grant Association. I have submitted a written statement for the record and will summarize its main points.

The National Association of State Universities and Land Grant Colleges (NASULGC) is composed of 140 colleges and universities with a total enrollment of approximately 3.7 million students. These institutions award more than 38 percent of all U.S. higher education degrees, including 64 percent of all doctorates. Many of the foremost contributors to research and education on the oceans and their resources are located on these campuses. The Sea Grant Association consists of 35 colleges, universities, research centers, industries, and consortia, all dedicated to enhancing the nation's capability to develop, use and manage our marine resources. Most members of the Sea Grant Association are also members of NASULGC. Over the past five years, Sea Grant programs have supported research, education, and advisory (extension) activities at more than 250 educational institutions in 39 states, plus Guam, Puerto Rico, and the District of Columbia.

I am particularly pleased to note that Senator Packwood, Chairman of the Commerce, Science and Transportation Committee, has provided leadership for Sea Grant legislation in the U.S. Senate and supported the original state matching legislation for Sea Grant as a member of the Oregon legislature in 1967—even before the first program grant was made. We are indebted to all the members of this committee for their effort and steadfast support of the Sea Grant program. The Sea Grant idea of a partnership among universities, government, and the private sector to promote better use of marine resources was a great idea in 1966; it has been a successful idea since that time; and it remains a timely and necessary idea today, when productivity and results are so important for the country.

Mr. Chairman, the Sea Grant network has compiled extensive documentation as background for reauthorization. My testimony today will summarize the essence of these materials, and the attachments to the testimony will amplify my presentation. I wish to concentrate on the following points:

A perspective on why Sea Grant is unique, important and should be reauthorized.

A review of the ocean economic sector of the economy and Sea Grant's contribution to that sector.

Some examples of Sea Grant contributions illustrating these points in an area of current great concern to your committee and the country: high technology and scientific and technical manpower training.

A summary of Sea Grant's basic reauthorization request.

An outline of the basic documentation which we have provided to the Congress, documentation which exemplifies our continuing emphasis on results and our willingness to be judged on the basis of those results.

THE NATIONAL SEA GRANT COLLEGE PROGRAM

Mr. Chairman, we believe that the National Sea Grant College Program Act should be reauthorized essentially as it is, on a multi-year long-term basis and with funding levels sufficient to do the job. We base this request on our past record. The

Sea Grant program works. It is accomplishing precisely what the Congress established it to do. As a result, your committee and others in the Congress have cited Sea Grant as one of the most effective, cost-efficient programs of the Federal government. We have achieved our results through a university/industry/government partnership in the field of marine resources. We are a merit-based, tightly managed and highly competitive national network of locally based research, education, and advisory programs, attacking problems at the grassroots level long before they are perceived in Washington, D.C. The Sea Grant program maintains a unique role in marine resource development and responds to a vital national need that is not addressed by other university, industry, or government activities. But our job is far from finished!

Over the past two years, the entire Sea Grant program and concept has been under stress. Some said that we were essentially a local program and thus support should be entirely local. Others mentioned that we had done such a good job that we had finished our work. The truth, of course, is that we have helped this nation to make a new beginning toward restoring the United States as a maritime nation. Part of the pay-off will be determined by the continuity and refinement of the Sea Grant College Program. This promise may be why the Sea Grant community feels so optimistic about the long-rerm future of the program and frustrated with those who suggest that we have completed the tasks set before us in 1966.

Our message to Congress and the American people is based on program results. We will continue to point these out. At the same time, however, the demands for a national marine resources strategy and ocean policy indicate the crucial need for Sea Grant today. Issues such as extend jurisdiction, outer continental shelf resource development, and Great Lakes transboundary questions, as well as the scientific potential in such areas as biotechnology and high technology, continue to create new needs and new opportunities for Sea Grant—for our research, for our advisory services, and especially for our students.

SEA GRANT AND THE OCEAN SECTOR OF THE ECONOMY

The Sea Grant programs undertake many different efforts for a variety of reasons. The oceans and coasts are diverse, and the needs of the marine environment and the people who use it require diverse approaches. However, to understand how and why Sea Grant works and why it is more critically important to the nation than ever, we need to understand the ocean sector of the economy and Sea Grant's contribution to that sector.

The economic development potential of the marine and coastal resources of the United States has attracted much attention in recent years. However, the magnitude of this economic activity within the coastal and ocean sectors only recently has been assessed, largely as a result of Sea Grant efforts. (Science, Vol. 208, 30 May 1980.) This analysis of the ocean economic sector in the National Income Accounting System (NIAS) places the ocean sector value at $30.6 billion in 1972 dollars which is comparable to agriculture ($35.4 billion), mining ($18.9 billion), construction ($58 billion), transportation ($46.2 billion), and communications ($29.4 billion). This NIAS assessment is based upon nine major industrial subsectors:

1. Commercial fishing (harvesting, processing, and aquaculture).
2. Marine mining (oil and gas, sand and gravel, and limestone).
3. Marine construction.
4. Manufacturing (ship and boat building).
5. Marine transportation and communication (shipping, cargo handling and warehousing, transportation services, and marine-related communications).
6. Marine-related retail trade (marine-related merchandising and retailing).
7. Marine financing, insurance, and real estate.
8. Marine services (hotels, marine recreation, educational services, museums, and marine organizations).
9. Public administration—state and local (federal government, ocean-related activities).

These data provided the first major overview of the oceans' economic importance. A more recent assessment of the magnitude of the private marine sector has been conducted by the Task Force. Considering all aspects of fishing, marine-related manufacturing, marine transportation, and marine-related tourism—industries of primary concern to Sea Grant—revealed that total sales exceeded $56 billion in 1978. These industries employed more than 1.4 million people with a payroll of more than $11 billion. Further, Department of Commerce figures indicate that sales within these industries increased 21.4 percent from 1977 to 1978, with an increase of 8 percent in employment, for a productivity increase of 14 percent in sales and shipment per person.

It is important to understnd the structure and characteristics of the industrial, business, and commerce components of the ocean sector. A preliminary analysis suggests that most of the industries within the private marine sector are discrete, often small evolving units. The oil and gas industry is an exception. The commercial fishing industry, for example, is comprised mainly of small independent businesses and is much more characteristic. The National Sea Grant Program's marine resources development work is focused on this ocean economic sector, and its many diverse, fragmented activities.

Most observers agree that the commitment of universities and industry to research and extension was the key to federal policy that so effectively encouraged the agricultural industry. In 1966, the federal government established a similar policy and structure for encouraging development of the ocean sector through the National Sea Grant College Program legislation. Its intent is "to accelerate national development of marine resources, including their conservation, proper management, and maximum social and economic utilization." More specifically, the program was directed to "achieve the gainful use of marine resources" through a partnership between the federal and state governments, universities, and the private sector. The term "Sea Grant" was chosen to emphasize the agricultural parallel in meeting contemporary national needs by developing the economic potential of our marine resources. Thus, Land Grant and Sea Grant are two essential thrusts to help put America's land and sea resources to work through problem-focused research and training and the extension of practical information to people and industries who can apply this new knowledge. In Oregon, for example, Sea Grant Advisory projects are efficiently integrated within Cooperative Extension as one of seven subject-oriented elements in this aggressive informal education program.

A 1981 National Sea Grant survey has provided data on research and extension activities that have had direct economic impacts on industry, business, and commerce. This analysis, with which you may already be familiar, is summarized in a report entitled "Economic Effects of Sea Grant." The report outlines the economic impacts of 57 Sea Grant projects and documents their effects on industry, business, and commerce, using the major marine categories of the National Income Accounting System. The annual gross revenues and savings stimulated by those 57 efforts amounted to $227 million, divided as follows:

a. Fish harvesting	$36,552,000
b. Seafood processing and marketing	16,500,000
c. Aquaculture	21,752,000
d. Marine construction	126,896,000
e. Marine transportation	2,890,000
f. Marine related retail trade	19,400,000
g. Marine related real estate	2,196,000
h. Marine service industry	813,000
Total	226,999,000

This annual figure, based on a small sample of Sea Grant work, is very close to the total 13-year amount the federal government had invested in Sea Grant between 1968 and 1981.

Another recent study, again looking at a small sample of Sea Grant work and at only one kind of economic indicator, sales, graphically demonstrates Sea Grant's achievements:

"In 1976, a MIT research team not associated with Sea Grant, reviewed 77 projects funded in one year (1975) to determine if they might lead to new commercial products. These projects were reassessed again this past year. In 1981, 19 of these projects have lead to commercial development with annual sales of $44-$62 million. Further, the original projects have led to 11 new products for industry and business, with 10 new companies having been formed as a direct result of Sea Grant efforts, with approximately 25 secondary companies producing the same products."

Thus, using the most conservative figure of $44 million in annual sales from this small sample of projects, this annual figure exceeds the highest annual appropriation Congress ever made to Sea Grant ($41.8 million). When you think of all of the other projects with economic implications and of all of the other kinds of economic benefits besides sales (such as cost savings or jobs preserved), you can understand one reason why we keep speaking of Sea Grant as an investment.

TECHNOLOGICAL ADVANCE, MANPOWER NEEDS, AND SEA GRANT

The need for technological advance, for better applications for technology and for more investment in scientific and engineering manpower is a matter of great concern to this committee, the Congress, the administration, and the country, By way of a few examples, I would like to demonstrate how Sea Grant has contributed and is contributing to this area of national need.

A university's primary product is an educated and well-trained graduate. Sea Grant has trained nearly 7,000 students, mostly at the graduate level, since 1968. In the Oregon program alone, about 340 students have completed graduate degrees, a success rate of more than 92 percent. The top three fields of study were oceanography, ocean engineering and ocean law. Other significant fields included fisheries, seafood sciencie and technology, and marine resource economics. A majority of these students, in Oregon and nationally, have gone to first employment in marine-related professions. Our data indicate that 40 percent entered the private sector, 32 percent public employment, and 28 percent academic-related positions.

Washington Sea Grant's pioneering work in underwater acoustics has not only created a new technology that is transforming fishery management, but it has created a new domestic industry: the manufacture of high precision acoustic instrumentation: Biosonics, Inc., formed in 1978, today employs more than 60 people and annually manufactures and sells several million dollars worth of equipment to customers throughout the United States—and eight foreign countries.

In Oregon, Sea Grant researchers have found a way to save millions of dollars annually for containerized shipping ports by developing a computerized loading plan. We are training people to use this plan and the necessary technology; and as a result, ports in the northwest should be better able to handle multi-million dollar projects that will mean more jobs at a time they are badly needed.

In Wisconisn, modest efforts on underwater work systems and marine mining have produced highly trained personnel who are working today in such places as Exxon, Bechtel, General Motors, Ford, Lockheed, and Bell Labs.

The chairman and members of the staff are aware of the MIT/Marine Industry Collegium. This paid membership operation brings university researchers together with government agencies and nearly 100 major marine industries. The researchers update the government and industry personnel on research developments and their implications. In return, they receive feedback on manpower and research needs. Recent Collegium meetings have covered areas of opportunity such as wave power systems, vibration response of offshore structures, underwater communications and robotics, and computer-aided ship design. The students involved in the research areas covered by the Collegium are a key source of the manpower for technology-based marine industry.

Lest we forget that all of this high-powered technology and manpower has to serve ordinary people, I want to mention the pioneering efforts of the Rhode Island and Georgia Sea Grant programs, among others, to bring modern technology to the fishing industry. These efforts are helping a badly distressed sector of the marine economy. A major undertaking of our newest regional Sea Grant network, the Southeast Marine Advisory Service, is aimed at spreading this new technology more widely. Perhaps even more dramatic has been the combined efforts of the Atlantic coast Sea Grant programs to make real-time satellite information on sea surface temperatures and shifting Gulf Stream flow available to fishermen and shippers. The President of the American Swordfish Association has estimated that in one year only this information saved the East Coast swordfishermen $2.25 million and resulted in greater catches.

The Pacific Sea Grant College Programs in Alaska, Hawaii, California, Oregon, and Washington, in close coordination, are working to develop, use, and conserve the vast resources of the Pacific Ocean—a largely undeveloped wilderness that occupies nearly one-half of the globe.

Mr. Chairman, there are a number of areas of scientific breakthrough that offer great promise to our nation's ocean effort. Biotechnology and genetic engineering will help us find stronger, disease-resistant fish strains both for aquacultural rearing and for restocking the oceans. The applications of satellite technology are just beginning. As we meet here today, a team of Oregon State University scientists, headed by Sea Grant's Dr. Bruce Mate, are in San Ignacio Lagoon, Baja California, Mexico, attempting to attach satellite-tracked radio tags to the gray whales calving there. This new instrumentation was developed with support from the Bureau of Land Management and Sea Grant.

Computers are now essential in aiding structural design and in making both governmental and industrial management more effective. Sea Grant research has also helped to make this technology a normal part of the operations of small ports and individual fishermen.

Robotics and offshore and underwater work systems are central to our growing use of the ocean. Sea Grant is already heavily involved in this area. It is possible to address the cutting edge of science while also involving American industry and the profit motive.

During the last Congress and again this year, there has been a great deal of interest in reindustrialization, in high technology, in technical and scientific manpower training and in fostering university/industry and university/industry/government cooperative activity to revitalize our economy. This year, the administration has indicated that it shares the congressional interest in these matters. We applaud this interest and urge you to push developments in these areas. At the same time, we are somewhat baffled that there has been a tendency to overlook Sea Grant, which has been working on these matters in the marine sector for a long time now. We are one of the models for successful activity, and we would urge you and the administration to remember this.

REAUTHORIZATION

In the attachments to this testimony and in the materials we have provided to committee staff, we have outlined our request for reauthorization. I would like here to underscore a few points.

First, we feel the reauthorization should be for a multi-year period, preferably five. Research and education are long-term activities, requiring planning and lead-time. This is particularly true of the kinds of activities I have just been discussing. One- and two-year fragments of time are not sufficient. In addition, we need to send a signal back to our states, universities, faculties, and students that Sea Grant is alive and well and has support at the national level. Matching funds have been jeopardized by the federal uncertainty of the last two years. Most of our states and universities have fiscal situations just as severe as those of the federal government—even more so in the case of Oregon, as an example. We took seriously your counsel to search for other sources of program support but have uncovered few significant alternate forms of funding.

Our best faculty and students, the people who will ultimately make or break the national marine development effort, are understandably nervous about the federal commitment and are wondering if their efforts might not be better placed elsewhere, in areas where continuity and stability and ultimate acceptance are more assured. Indeed, Mr. Chairman, since I last spoke to this committee on September 1, 1982, in Coos Bay, Oregon, two senior Oregon Sea Grant faculty have chosen to leave for presumably more responsive and firm positions elsewhere. This situation is not unique to Oregon. There is a need to halt this erosion. Positive action on Sea Grant reauthorization will be an important step.

Second, we urge that authorization figures adequately reflect genuine program needs and opportunities, rather than immediate budget problems. We suggest a $42 million figure for the FY84 program. We are not unrealistic about the present fiscal climate, but at the same time believe that it would be misleading to suggest that $35 million will do the job and that we can equal past accomplishments for ever-decreasing dollars. Even before 1981, the large, mature programs which primarily produced the Sea Grant record were facing increased erosion of their funding base. This erosion has accelerated. I will be glad to discuss with you what this means in Oregon's case. At the same time, the newer and smaller programs are in danger of being strangled before they can reach viable mass and make the contributions of which they are capable. I urge that you consider this situation before you settle on an appropriate authorization level. Appropriations may have to reflect short-term constraints, but authorization should make a clear statement of what is needed to do the job.

Finally, we urge that the Congress continue authorization for the Sea Grant International Program. This modest, recent effort has much to offer. The marine field has been largely ignored in other United States international efforts. Oregon State University is a leader in Sea Grant's international efforts in Latin America. This is not a giveaway program. It is truly a mutual activity, involving resources and people from all participants and benefiting United States participants at least as much as those from the foreign countries. Just as the Sea Grant program as a whole is a hardheaded investment, not a handout, so the Sea Grant international activities are an investment, not foreign "aid."

SEA GRANT DOCUMENTATION

Mr. Chairman, the Sea Grant community has recently prepared a resource book for use by program personnel at our various universities as a means of information exchange and program development. It also serves as a basic background document for Congress with regard to Sea Grant reauthorization. We believe that to be the most extensive documentation ever prepared on a program of this size in the area of this committee's jurisidiction. We have provided copies to many members of your staffs and will furnish others as needed. My testimony today is largely a summary of parts of the resource book. Since the book itself is too long and bulky for submission with this testimony, we have provided the following excerpts as attachments:

(A) A statement, "Reauthorization of the National Sea Grant College Program"

(B) Our "Proposed Reauthorization" legislation

(C) The "Contents and Summary" of the resource book, which outline the information available

(D) A summary, "Some Recent Sea Grant Accomplishments"

(E) Two-page documents from my Oregon State University Sea Grant College Program, as examples of materials contributed by members of the network

(F) A summary of the recent Massachusetts Institute of Technology study of the commercial use of Sea Grant research

(G) Pages 4-8 of the 1981 Sea Grant Task Force study, "Economic Effects of Sea Grant"

(H) A summary of the Sea Grant International Program

CONCLUSION

In conclusion, we feel that the record justifies continuation and enhancement of the National Sea College Program. We have provided extensive information documenting the results of the program. We believe that the results speak for themselves, and that by any standard the program is a valuable national asset. Finally, we believe that the many groups and people who have used Sea Grant's work—industry, business, the public sector, citizens' groups, and individuals—will continue to join us in demonstrating that the Sea Grant idea works and that it is vital to the future of our nation.

I'll be glad to attempt to answer questions.

Thank you.

Attachments.

OREGON STATE UNIVERSITY,
Corvallis, Oreg.

SEA GRANT COLLEGE PROGRAM

The Oregon State University Sea Grant College is helping to put America's oceans to work through an integrated program of research, education, and advisory services. In developing our marine resources, OSU Sea Grant stimulates the economy by increasing our knowledge about the ocean and encouraging product development, which improves marine employment opportunities. Sea Grant-sponsored projects cover many marine areas and issues. A few examples follow:

OSU Sea Grant researchers found a way to save millions of dollars annually for containerized shipping ports by developing a computerized loading plan. Port management seminars are being held based on this research; as a result, West Coast ports should be better able to handle multi-million dollar projects that mean more Northwest jobs.

OSU Sea Grant marine advisers developed and administer a towboat routing plan which has reduced equipment damages for West Coast crabbers and towboat operators. Annual damages were decreased 10- to 16-fold, from as high as $800,000 to just $50,000 per year.

Advisers develop workshops, like the annual Northwest Trawl Conference and Gear Show, where this year, an electronic fish-finding session increased fishermen's use of Loran-C plotters. Now, fishermen are catching more fish, more efficiently.

Marine advisers studied pinnipeds (sea mammals with flippers), developing techniques to track seal movements with radio transmitters. They discovered much about what seals eat and where they roam. A sound-producing device was subsequently developed to ward off seals and sea lions. It promises to save millions of dollars in damaged fishing gear and lost fish catches, while saving marine mammals' lives. Radio-tagging is being adopted for satellite use to study and track migrating whales traversing offshore oil drilling areas.

OSU seafood technologists added millions of dollars annually to the West Coast seafood processing industry by developing ways to increase the yield of Pacific shrimp, while improving flavor. Marine advisers report most West Coast processors have adopted the methods. These techniques are being applied to other seafoods, such as rockfish fillets.

A unique international seafood trade conference recently attracted more than 150 economists from 21 countries. The OSU-initiated conference—co-sponsored by Alaska Sea Grant—focused on understanding complex issues of the U.S. seafood trade balance problem. This problem is vast: We import 60 percent of the fish we eat.

OSU Sea Grant salmon ranching research has stimulated development of private companies; these companies not only provide salmon for consumers, but add fish to the resource that West Coast fishermen depend on. We develop low-cost technology needed to make such ventures feasible.

OSU forest products specialists and oceanographers found ways to reduce decay and marine borer damage to docks and pilings—$1 billion problem for the U.S. each year. The construction and fungus control practices developed can save waterfront facility owners millions of dollars.

More than 300 OSU Sea Grant-supported students have received advanced degrees. These highly trained specialists are making positive impacts in private and public businesses, helping to design plans for the oceans.

Because the OSU program is part of the national Sea Grant network, the techniques developed to solve regional problems are often adopted nationally. The program is one of the nation's original programs, started 15 years ago. Oregon State was designated a Sea Grant college in 1971 and is dedicated to the development and wise use of the ocean and coastal zone. Five other schools of higher education are also involved with the OSU program: The University of Oregon, Lewis and Clark College, The University of Idaho, Clatsop Community College, and Washington State University.

PRESERVING OREGON'S OYSTER INDUSTRY

(A multi-agency effort spearheaded by OSU Sea Grant)

The goal of the Oregon State University Sea Grant College Program is to put our oceans to work through a partnership of industry, government and the university. One good example of how well this partnership works: a pollution abatement and regulatory program was developed that helped save Oregon's oyster industry from closure. The closure would have had far reaching impacts—affecting tourism, fishing and recreational clamming, upon which the coastal economy depends.

Abstract: In 1977, the Federal Food and Drug Administration (FDA) threatened to close down the Oregon oyster industry because of water pollution coming from several sources. Oyster growers asked OSU Sea Grant for technical help. A Sea Grant seafood specialist in microbiology, a Sea Grant marine advisor and an OSU agriculture extension agent brought regulatory agencies, oystermen and dairy farmers together to clean up the bay and save the industry. The four-year project is a success story of industry, government and university representatives working together to solve a problem.

Background: In Oregon, the Department of Environmental Quality (DEQ) is charged with developing water quality management plans that meet requirements of the 1972 Federal Water Pollution Control Act. DEQ handles sampling of shellfish-growing water, while the Oregon Health Division and the FDA cooperatively administer the National Shellfish Sanitation Program. The primary-oyster growing area, Tillamook Bay, is 6 miles long by 2 miles wide, with a 363,520-acre drainage basin. It is a multiple-use estuary with two major industries: oysters and dairies. The two industries are not very compatible and further complications come from five sewage treatment plants depositing treated sewage in the bay.

The problem: Because of problems with these plants and dairy-waste runoff during heavy rains, Tillamook Bay failed state and federal shellfish-growing water bacterial standards. The FDA often criticized Oregon's shell fish sanitation program, threatening to remove its federal endorsement in 1977. Without this endorsement, oyster growers could not ship across state lines. The problems were broader: the coastal economy depends on tourism. Tourists, who fish mainly for salmon and dig for clams, might mistakenly think all the estuaries were polluted and avoid Oregon.

The approach: Oyster growers asked OSU Sea Grant for help and advice. Sea Grant began researching the source and severity of Tillamook Bay pollution, helping to form a task force to make recommendations. The task force was made up of (1) the oyster industry, (2) the Oregon Health Division, (3) the DEQ, (4) the Oregon Department of Agriculture, (5) the Oregon Department of Fish and Wildlife, and (6) Sea Grant.

Results: The task force developed a comprehensive shellfish sanitation program and bay management model to protect public health, while maintaining the shellfish industry. The recommendations made and followed include strategies which allowed the five sewage treatment plants to meet EPA standards set for shellfish-growing waters and plans designed to reduce dairy farm pollution. Specific recommendations included (1) the hiring of a full-time shellfish sanitation specialist to coordinate the sanitation program and respond to emergencies; (2) the setting of pollution standards for closing Oregon bays to shellfish harvesting; (3) the sampling of shellfish meat for fecal coliform and Salmonella, not simply testing for bacteria in water; (4) more frequent water quality monitoring by DEQ; and (5) closure criteria for the bay. Currently, some 88 dairymen (out of 115) have signed up for some $3 million in construction funds available through the U.S. Department of Agriculture, under the Rural Clean Water Act. The funds—disbursed by the Agriculture Stabilization and Conservation Service and applied with the help of the Soil Conservation Service and OSU Extension—are being used to build protective shelters and storage units for dairy wastes. Dairy farmers, in turn, are using additional private funds for further dairy improvements, which is helping the local economy.

The CHAIRMAN. Mr. Sleik, you are next.

Mr. SLEIK. Thank you, Mr. Chairman, members of the committee and guests and Senator Pell.

I am very happy to have this opportunity to testify about the importance of the sea grant program and I am appearing before you in two primary capacities today. One, I am the vice president of purchasing and menu planning for Red Lobster Inns of America.

Red Lobster is the single largest dinner house restaurant in the country and will serve over 75 million meals this year and will utilize in excess of 50 million pounds of seafood doing this.

Senator PELL. Excuse me. Where do you get your lobsters from?

Mr. SLEIK. Everywhere we can.

Senator PELL. I see.

Mr. SLEIK. In addition, I am the vice president of region VIII—representing Florida, Georgia, and South Carolina—for the National Fisheries Institute, NFI, a group that represents over 1,100 companies nationwide involved in the catching, processing, packing, distributing, and marketing of seafood.

If I might, Mr. Chairman, the statement has been designed to be submitted within the 10-minute timeframe, and if I might just refer to the statement for my remarks.

The United States has a wealth of marine resources that have several special interests vying for them, including recreational/sport fishermen, commercial fishing interests, environmentalists, offshore oil interests, as well as many others. One of the most difficult challenges regarding our national marine resource management is balancing special interest concerns while protecting the "best interest" of the Nation.

Although Red Lobster and NFI are both actively involved in marine resource management, the sea grant program is the only comprehensive research and development partnership linking and networking the Federal Government, industry, and universities to foster the development of our Nation's marine resources.

Because the seafood industry represents less than 1 percent of our population and the recreation industry includes approximately 9 percent of the population, over 90 percent of our Republic is primarily dependent upon the efforts of the sea grant program to insure their best interest is served by our national marine resource management program.

Recently I had the opportunity to participate in a panel held at the Marine Advisory Service Professional Development Conference in Tampa, Fla. The panel included representatives from National Marine Fisheries Service; the recreational industry; Southeastern Fisheries Association; Deborah Stirling, minority staff director, National Ocean Policy Study; Sea Grant; and seafood consumers.

The topic of the panel was "What Is And/Or Should MAS Be?" And reports from all segments concurred that the Marine Advisory Service provides useful assistance as well as being a key resource for obtaining information and sharing concerns. Much interest was also expressed by the panel for the MAS to expand its activities and staff to meet more needs of the public.

Currently, improvement of efficiencies, including harvesting techniques, fuel consumption, processing techniques, development of nontraditional species, and many others are an active part of the Marine Advisory Service that yield an immediate payback. The Marine Advisory Service also provides critical feedback to marine coastal service agencies to help them be more effective in their jobs.

Because of its grassroots orientation, it gets extremely valuable feedback from the recreational industry, commercial industry, consumers, and youth about programs, concerns, and local, regional, and national issues. They are in a position to assist sport and commercial fishermen with technology transfer and provide applied problem-solving research to today's practical concerns.

Input from the MAS provides other parts of sea grant and other parts of NOAA and outside concerns with topics that need further research and investigation. Because of the fragmented and entrepreneurial nature of the U.S. seafood industry, efforts of the MAS need to be expanded and supported by Congress.

Part of my responsibilities with Red Lobster have taken me around the world in pursuit of quality seafood. Much publicity has been spread in the past few years about the inferior quality and lower prices of seafood imports, particularly shrimp. As one of the largest direct purchasers of seafood and of shrimp, I can unequivocally tell you that it is not true that all imports are of lower quality and price.

The facts show that much of the imported raw headless shrimp command a premium price to the domestic product and it is because of their higher quality that they can command a premium. Quality is the key to developing long lasting markets for seafood. Education is the key to establishing good quality.

In many countries, active involvement and support from their governments provides the industry with tools to improve both productivity and quality. The sea grant program is in a position to assist the U.S. industry in the same manner while maintaining a balance with the best interest on a national scope.

The industry is not expecting Government to sponsor sea grant totally and has aggressively pursued private support and cooperation with the sea grant program. Red Lobster has supplied sea grant with financial and resource support for several years. We work closely with the sea grant programs at Texas A. & M. University and Florida. In the past 3 years, we have been sponsoring several grants at Texas A. & M. and have a student intern program going on with the University of Florida.

Currently the American public only consumes 13 pounds of seafood, while at the same time consuming over 100 pounds of beef, 60 pounds per capita of pork, and over 60 pounds per capita of poultry, we see an opportunity for seafood consumption to be increasing. Recent research has identified that seafood provides several nutrition and health benefits absent in other protein forms.

The current Seafood U.S.A. program's research, coordinated by the National Marine Fisheries Service, reveals that the cholesterol in seafood is able to break down cholesterol from other traditional sources of cholesterol. At the same time, medical research is identifying health benefits associated with eating seafood. There has been a dramatic increase in the utilization of seafood in the food service industry, with over 37 percent of dinner house and coffee shop restaurants adding seafood to their menus.

Unfortunately, 1982's seafood imports exceeded exports and negatively impacted our balance of trade by over $3.5 billion. Increased consumer awareness of the positive attributes of seafood, along with increased utilization of seafood in food service, indicate that seafood consumption in the United States will be growing.

With the help of the Marine Advisory Service, Sea Grant, NMFS, NOAA, and NFI, and the efforts in the private sector, we will continue to strive to increase the production, quality and availability of the natural resources within our boundaries to provide for significant increases in U.S. seafood supplies.

What we need is a coordinated, balanced plan involving Government, universities, and industry to protect the best interest of the public while maximizing production and quality levels of U.S. seafood. The sea grant program is in a unique position to continue being a comprehensive research and development partnership linking the Federal Government, regional management councils, universities, and industry to foster the development of our Nation's marine resources. To this end, we strongly support funding at an adequate level.

Thank you.

[The statement follows:]

STATEMENT OF JONATHAN SLEIK, VICE PRESIDENT, RED LOBSTER INNS OF AMERICA

Mr. Chairman, members of the Committee on Commerce, Science and Transportation and quests, thank you for this opportunity to testify on the importance of the Sea Grant Program. I have the honor of appearing before you in two primary capacities today. First, I am the Vice President of Purchasing and Menu Planning for Red Lobster Inns of America. Red Lobster is the largest dinner house restaurant in the country and will serve over 75 million guests this year utilizing in excess of 50 million pounds of delicious seafood. In addition, I am the Vice President of Region VIII (representing Florida, Georgia and South Carolina) for the National Fisheries Institute (NFI), an industry group representing over 1100 companies nationwide involved in the catching, processing, packing, distributing and marketing of seafood.

The United States has a wealth of marine resources that have several special interests vying for them including: recreational/sport fishermen, commercial fishing interests, environmentalists, offshore oil interests, as well as many others. One of the most difficult challenges regarding our national marine resource management is balancing special interest concerns while protecting the "best interest" or our country. Although Red Lobster and NFI are both actively involved in marine resource management, the Sea Grant Program is the only comprehensive resarch and development partnership linking the Federal Government, industry and universities to foster the development of our nation's marine resources. Because the seafood industry represents less than 1 percent of our population and the recreation industry includes approximately 9 percent of the populations, over 90 percent of our Republic is primarily dependent upon the efforts of the Sea Grant Program to ensure their "best interest" is served by our National Marine Resource Management Program.

Recently I had the opportunity to participate in a panel held at the Marine Advisory Service Professional Development Conference in Tampa, Florida. The panel included representatives from National Marine Fisheries Service (NMFS); the recreation industry; Southeastern Fisheries Association; Deborah Stirling, Minority Staff Director, National Ocean Policy Study; Sea Grant, and seafood consumers. The topic of the panel was "What Is And/Or Should MAS Be?". Reports from all segments concurred that the Marine Advisory Service provides useful assistance as well as being a key resource for obtaining information and sharing concerns. Much interest was also expressed by the panel for the MAS to expand its activities and staff to meet more needs of the public. Currently, improvement of efficiencies including harvesting techniques, fuel consumption, processing techniques, development of non-traditional species, and many others are an active part of the Marine Advisory Service that yield an immediate payback. The Marine Advisory Service also provides critical feedback to marine coastal service agencies to help them be more effective in their jobs. In terms of addressing their three primary areas (1. Research, 2. Education, 3. Advisory) the MAS Program has been doing an excellent job.

The Marine Advisory Service, because of its grass roots orientation, gets extremely valuable feedback from the recreational industry, commerical industry, consumers and youth about programs, concerns, and local, regional and national issues. They are in a position to assist sport and commercial fishermen with technology transfer and provide applied problem solving research to today's practical concerns. Input from the MAS provides other parts of Sea Grant and outside concerns with topics that need further research and investigation. Because of the fragmented and entrepreneurial nature of the U.S. seafood industry, efforts of the MAS need to be expanded and supported by Congress.

Part of my responsibilities with Red Lobster have taken me around the world in pursuit of quality seafood. Much publicity has been spread in the past few years about the inferior quality and lower prices of seafood imports, particulalry shrimp. As one of the largest direct purchasers of seafood and shrimp, I can unequivocally tell you that it is not true that all imports are of lower quality and price. The facts show that much of the imported raw headless shrimp command a premium price to domestic product and it is because of their higher quality that they can command a premium. Quality is the key to developing long-lasting markets for seafood. Education is the key to establishing good quality.

In many countries, active involvement and support from their governments provides the industry with tools to improve both productivity and quality. The Sea Grant Program is in a position to assist the U.S. industry in the same manner while maintaining a balance with the "best interest" on a national scope.

The industry is not expecting government to sponsor Sea Grant totally and has aggressively pursued private support and cooperation with the Sea Grant Program. Red Lobster has supplied Sea Grant with financial and resource support for several years. Red Lobster works closely with the Sea Grant programs at Texas A&M University and the University of Florida. We sponsor a student intern program at the University of Florida and for the past three years have given Texas A&M grants for development of specific research projects. The NFI has committed an extensive part of their budget to research grants with various Sea Grant programs around the country.

Currently, the American public eats 13 pounds/capita of seafood while consuming over 100 pounds/capita of beef, 60 pounds/capita of pork, and over 60 pounds/capita of poultry. Recent research has identified that seafood provides several nutrition and health benefits absent in other protein forms. The current Seafood USA Program's research, coordinated by NMFS, reveals that the cholesterol in seafood is able to break down cholesterol from other traditional sources of cholesterol (i.e., eggs, beef, etc.). At the same time, medical research is identifying health benefits associated with eating seafood. There has been a dramatic increase in the utilization of seafood in the foodservice industry with over 37 percent of dinner house and coffee shop restaurants adding seafood to their menus.

Unfortunately, 1982's seafood imports exceeded exports and negatively impacted our balance of trade by 3.5 billion dollars. Increased consumer awareness of the positive attributes of seafood, along with increased utilization of seafood in foodservice, indicate that seafood consumption in the USA will be growing. With the help of the Marine Advisory Service, Sea Grant, NMFS, NOAA and NFI, as well as the efforts in the private sector, we will continue to strive to increase the production quality and availability of U.S. seafood products to minimize the balance of trade impact. We have the natural resources within our boundaries to allow for significant increases in U.S. seafood supplies. What we need is a coordinated, balanced plan involving government, universities and industry to protect the "best interest" of the public while maximizing production and quality levels of U.S. seafood. The Sea Grant Program is in a unique position to continue being a comprehensive research and development partnership linking the Federal Government, Regional Management Councils, universities and industry to foster the development of our nation's marine resources. To this end, a return to the 1981 level of financing would appear to be essential.

The CHAIRMAN. Thank you, Mr. Sleik. Mr. Sleik, you referred to quality of seafood. I will ask this question of you or Mr. Wick.

Is there any seafood quality assurance program operated by the Federal Government now?

Mr. WICK. There are voluntary ones, as far as I understand.

The CHAIRMAN. Voluntary?

Mr. WICK. Voluntary.

The CHAIRMAN. And is that program being funded or is the tab picked up——

Mr. WICK. As I understand, it's an industry cost pickup.

Mr. SLEIK. As I am familiar with it, it is a pay-as-you-go proposition for inspection.

The CHAIRMAN. Mr. Sleik, you come from industry. Let me ask you the same question I asked Dr. Byrne and Mr. Wick.

If we eliminate the sea grant program, what do you think is the likelihood that States and/or industry would be able to pick up the difference?

Mr. SLEIK. I would have to agree with what we have heard earlier. I do not think it is realistic to think that the States are in a position to be able to pick up the program, and at the same time the very nature of the seafood business, it is relatively fragmented, small size. We are one of the larger businesses involved in seafood, and we try to take an active part, but I do not think it is realistic to say that we could come anywhere near giving adequate support to the sea grant programs.

The CHAIRMAN. Claiborne?

Senator PELL. Thank you very much, Mr. Chairman. I would like to return to my question of where do the lobsters come from. Is your business, Mr. Sleik, mainly lobsters, entirely lobsters, or general seafood?

Mr. SLEIK. No, sir. It is a total, broad spectrum of seafood. Actually, our No. 1 seller is shrimp.

Senator PELL. But lobsters would be, what, 10 percent of your business, 20 percent?

Mr. SLEIK. Probably 10 percent.

Senator PELL. Where would they mainly come from—Rhode Island, Maine, Florida?

Mr. SLEIK. It depends on the species being offered. The Homarus Americanus, or the Maine lobster, comes from the Maine-Massachusetts area primarily. Then there is also rock lobster, which can come from Florida, the Keys, and it can also come from outside of the country.

Senator PELL. What about the very large offshore lobsters?

Mr. SLEIK. I am sorry. I am not familiar——

Senator PELL. The ones you see in restaurants sometimes this big.

Mr. SLEIK. They are not necessarily offshore. They continue to grow and their size will continue to expand, depending on your patience to wait to eat them.

Senator PELL. Returning to lobsters, one of the things I have not been able to understand is why we have not been able to develop a method of farming them so that they can be domesticated. As you know, there have been many experiments made along these lines, and we have yet to succeed in really creating a lobster farm.

What is the basis for that?

Mr. SLEIK. I believe the biggest challenge—and I think we have only to look at shrimp, which is a much easier species for us to look at, and we still have several difficulties involved with closing that entire cycle, although there is farm-raised shrimp, or aquaculture shrimp, produced in the world today.

The closing of the lifecycle of a proper species is not there. In lobster it is even a more challenging proposition because aside from closing the lifecycle research has not successfully, that I know of, come up with some way of neutralizing their cannibalistic characteristics and, therefore, you have to basically have individual condominiums for each one to live in so they can all survive.

Senator PELL. That does not apply to shrimp. That just applies to lobster?

Mr. SLEIK. Well, that can be a factor in shrimp, although it seems that if you keep the sizing the same in shrimp, if you keep basically the same size shrimp together, that does not, particularly in the young development, it is not a major problem, and as they grow older it is less of a concern.

Senator PELL. In your testimony you mentioned that lobsters have a cholesterol that eats up the regular cholesterol. That is counter to the general medical theory, which is those who are on a low cholesterol diet should avoid lobster. How do you account for the discrepancy there?

Mr. SLEIK. I believe my reference was to seafood generally and not specifically to lobster, first of all. And the medical research that has been done has been associated with primarily salmon at this point that I am familiar with, and whitefish.

Senator PELL. I would agree with you. I do think lobsters per se do have a high cholesterol.

Mr. SLEIK. The question is, and the question the researchers still need to tell us is, is the cholesterol in shrimp and lobster similar, more similar to that of redfish and whitefish or to eggs and beef. And until research answers that question, it is going to be an opportunity still that lobster cholesterol, though high, may be a positive benefit, health benefit.

Senator PELL. Thank you.

The CHAIRMAN. Gentlemen, thank you. I have no more questions. The hearing is adjourned.

[Whereupon, at 11:17 a.m., the committee adjourned, to reconvene upon the call of the Chair.]

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORIZATION

NATIONAL MARINE FISHERIES SERVICE

THURSDAY, MARCH 10, 1983

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, D.C.

The committee met, pursuant to notice, at 8:57 a.m., in room SR-253, Russell Senate Office Building, Hon. Bob Packwood (chairman of the committee) presiding.

OPENING STATEMENT BY THE CHAIRMAN

The CHAIRMAN. The hearing will please come to order. This hearing is the second of three that we have covering the entire budget of NOAA and after these hearings I am hoping we will produce legislation that will provide a comprehensive authorization for NOAA. If we do, it will be the first time in history that all of the NOAA programs have had formal authorization.

We are focussing today on the budget of the National Marine Fisheries Service. This budget, as far as I am concerned, needs a thorough review because of the extraordinary cut of 40 percent that is being proposed by the administration. At a time when we have a $3 billion deficit in our balance of trade on fishery products, I question whether we can afford to be cutting the budget of the agency that is probably the most critical agency involved in the entire area of fisheries.

And I want to say to Mr. Gordon and the others that last week we had a hearings on sea grant and other ocean programs, and the argument was used about how we should not worry that they are making cuts here. Cuts is hardly the word. We are cutting out the sea grant program under the fallacious assumption that the States and private industry will pick up the difference.

I see a fair portion of that in the testimony to be presented today and I do not think this administration can go on saying time after time after time we are going to cut, cut, cut and do not worry about it, the universities are going to pick it up, the States are going to pick it up, the private trade associations involved in fisheries are going to pick it up.

They cannot pick everything up. They have done yeoman work, but in many of the areas of fisheries these are national responsibilities and we cannot shunt them off to the States and local governments. What I frankly think is that the administration well knows we are shucking them off and killing them because the local governments and the States and the industries cannot and will not pick them up.

I would ask unanimous consent that there be placed in the record opening statements by Senators Hollings and Gorton and also a prepared statement of Senator Cohen.

[The statements follow:]

OPENING STATEMENT BY SENATOR HOLLINGS

Mr. Chairman, in my statement at our February 28 hearing on NOAA's Ocean and Coastal programs, I noted my great disappointment in the Reagan Administration's persistent attempt to tear down programs throughout NOAA. Only this week we heard the astonishing announcement that the Administration will seek to sell to industry NOAA's land remote sensing satellites and its highly productive meteorological satellites. And our hearing today will examine the details of a similar unearthly proposition—OMB's budget estimate for NOAA's fishery programs.

OMB would lay wast to about 40 percent of the National Marine Fisheries Service. Its proposal strikes at fishery development, at conservation and management, and at research. When contrasted with the increases or modest reductions proposed for sister agencies at the Interior Department, the deep cuts recommended for NMFS are especially puzzling. Does the right hand know what the left hand is doing? What is it about our terrestrial fish and wildlife that makes them more important than the animals in the sea? As one witness will point out, even the base programs of the Fisheries Service represent but a fraction of the national investment in marine fisheries by Mexico and Canada, not to mention Japan.

The Administration turns it back on fishery development programs that are just now beginning to pave the way for improved trade in fishery products, higher quality and more varied seafood for our homes and restaurants, and fuller domestic use of the fishery resources off our coast. OMB would eliminate entirely the successful Saltonstall-Kennedy grant program and leave a tiny vestige of the NMFS in-house fishery development program. Further, the Administration would continue to bar the door to loan guarantees for shoreside processing plants and other infrastructure needed for the development of a more robust industry. In its proposal the Administration blatantly ignores the action of this Committee and the Congress in December's gas tax bill, which dedicated the roughly $30 million of Saltonstall-Kennedy receipts for fishery development only and reaffirmed support for implementation of the loan guarantee program for shoreside facilities.

The rest of the fishery budget is equally unsound. Until I saw this budget, I had thought it was obvious that wise conservation and management is essential if Americans are to enjoy our marine fisheries and wildlife for years to come. And I had thought it equally obvious that wise conservation and management decisions require the timely collection and analysis of economic and biological data. Yet these truths were overlooked when OMB ripped into the Fisheries Service budget. First, the Regional Fishery Management Councils were slated for a 57 percent cut. These are the public bodies charged by statute with developing sound management plans for U.S. fisheries from the Caribbean to the Western Pacific Ocean. Then OMB addressed the longstanding programs of state-federal cooperation on commercial and anadromous fishery research. These state grant programs were offered up in their entirety. After that, nonhatchery research was proposed for termination, a big chunk of fishery habitat work was cast aside, and data collection and analysis activities were slashed. The outcome of this cutting frenzy is completely unacceptable.

I hope that today's hearing will lay the groundwork for a more rational approach to the federal investment in our living marine resources. Very soon the Administration is expected to proclaim a 200-mile exclusive economic zone for the United States. Fish and other marine animals are among the resources to which the proclamation will lay claim. That proclamation will be an empty gesture if the United States government fails to invest adequate funds in the work the National Marine Fisheries Service performs in support of the long term full use of marine fishery resources.

OPENING STATEMENT BY SENATOR GORTON

The National Marine Fisheries Service performs and funds activities which are vital to the health of this Nation's fisheries industry. The fisheries area is unique, because in many ways, it is truly an appropriate subject for federal funding. Fish do not respect political boundaries, and in recognition of that fact, management and conservation of U.S. fisheries is carried out on a regional, not state, basis. Many of these programs could not be carried out by the individual states without the leadership and support of the National Marine Fisheries Service.

I am concerned, therefore, to see that the proposed budget for the Fisheries Service represents a cut of nearly 40 percent, as compared to the Service's budget for 1983. I am particularly concerned that vital state programs, and programs affecting Northwest fisheries, such as the Columbia River Hatcheries Program and the salmon vessel buyback program, are the most affected by the budget cuts. This Committee, in its Report to the Budget Committee, did not concur with many of these proposed cuts. I have serious reservations about the ability of the States to take over adequately these important tasks in the management and conservation of a vital National resource.

STATEMENT OF HON. WILLIAM S. COHEN, U.S. SENATOR FROM MAINE

Mr. Chairman, I am pleased to have the opportunity to testify today on behalf of the important fisheries portion of the National Oceanic and Atmospheric Administration's budget.

The United States has come a long way over the last several years in terms of recognizing the natonal importance of our fisheries resources, the extent of which are still not well understood.

Commercial fishing is this nation's first industry. For many years the industry was not managed by the government, due largely to the incredible abundance of seafood that was found off our coasts. With so much to catch, no one worried, or could even imagine, that our seafood resources could someday become scarce. In fact, farmers in Maine at one time found lobsters to be so abundant that they were gathererd from the shore in baskets and scattered on the fields for fertilizer.

As time went on the number of fishermen and fishing vessels increased, it became obvious to many people that without some attempt to better understand the nature and extent of our fisheries resources, they would eventually be lost to overharvesting and brought to commerical extinction.

The distant-water fleets, which worked off our coasts without limits during the 1960's and 1970's, nearly caused those fears to become reality by employing their efficient pulse-fishing methods. Our haddock stocks were so badly decimated that resource biologists believed that these important food fish would never again be commerically important.

When the United States began to manage our fisheries resources in 1976, the task at hand was enormous. Since that time, NOAA and the eight Regional Fisheries Management Councils have been grappling with questions of optimum sustainable yield, best available scientific information, total allowable level of foreign fishing, domestic annual harvest, and many other concepts whose answers are elusive and require years of experience, experimentation, and experitse to be resolved. Our understanding has greatly increased since 1976, but the job is far from complete.

The Committee today is considering a fisheries budget, that, I believe, shows limited understanding of the complexities involved in managing our nation's fisheries resources. Many of the proposed budget reductions and program terminations would derail constructive management efforts that have been evolving for some time.

Congress has given NOAA the responsibility of conserving and managing fishery resources beause we have recognized that these resources contribute to the food supply, economy, and health of the Nation.

The most fundamental tool that NOAA has to use in carrying out this mandate is money for research. Research which may someday allow us to understand the resilience of our fishery resources, and their ability to withstand the pressures of harvesting and environmental changes, is essential to preserving this valuable source of food, employment, and national well-being.

Mr. Chairman, NOAA mantains that this budget would improve resource forecasts, strengthen management, and foster economic growth. Before closing, I would like to examine this statement in the light of some specific cuts being proposed.

I question the ability of this agency to improve resource forecasts when a $19 million or 39 percent reduction is proposed in information collection and analysis programs.

I do not believe that it is possible to strengthen ocean management capabilities when $4 million dollars, a reduction of more than 50 percent, is to be cut from the budget of the Regional Fisheries Management Councils. These unique bodies, which allow for direct industry and public contributions to federal fishery management, would be put out of business by reductions of this magnitude. NOAA would sorely feel the loss of these cooperative and knowledgable councils. For example, the New England Council has implemented plans to manage two of the most important New England fisheries and plans for four other major fisheries are now being developed.

The fact that the Council has recently instituted its second approach to managing the region's valuable groundfishery indicates the organic nature of their task and the importance of continued federal support. The Councils' successes may, at times, be the source of controversy, but I do not believe that NOAA alone could sufficiently satisfy the fishing industry so that the agency could successfully carry out the Councils' role in fisheries management.

Finally, I am skeptical that the removal of nearly $6 million dollars from NOAA's fishery development programs would foster the economic growth that the continuation of these programs at more constructive levels would do.

We are all aware of the budget difficulties that the United States faces today. We must not, however, make the mistake of going so far in our zeal for economy that programs which pay the nation great dividends become seriously endangered. In my view, the proposed NOAA fisheries budget is inadequate, and I urge the Committee to closely scrutinize the Administration's request so that the continued development and vitality of the nation's commercial fishing industry is not placed in jeopardy. Specifically, I believe that it is essential that, at a minimum, the Regional Fisheries Management Councils be reauthorzed at their present level of funding. I can not state emphatically enough that the reductions proposed for these Councils would seriously jeopardize their ability to carry out their Congressional mandate.

Again, Mr. Chairman, thank you for the opportunity to make these points today. I appreciate the time and attention the Committee has given to our commercial fisheries, and I look forward to working with the members of the Committee in the future to ensure that this industry remains healthy and productive.

The CHAIRMAN. Mr. Gordon, go right ahead.

STATEMENT OF WILLIAM G. GORDON, ASSISTANT ADMINISTRATOR FOR FISHERIES, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, ACCOMPANIED BY CARMEN BLONDIN, DEPUTY ASSISTANT ADMINISTRATOR FOR FISHERIES RESOURCE MANAGEMENT, AND JOSEPH ANGELOVIC, ACTING DEPUTY ASSISTANT FOR SCIENCE AND TECHNOLOGY

Mr. GORDON. Thank you, Mr. Chairman.

I will try and summarize my discussion. I would like to start off by introducing the two gentlemen with me. On my right, Carmen Blondin, the Deputy Assistant Administrator for Fisheries Resource Management; on my left Joseph Angelovic, Acting Deputy Assistant Administrator for Science and Technology. They form part of my top management team, and I will speak briefly——

The CHAIRMAN. I might say to all the witnesses, your statements in their entirety will be in the record. It is my preference that you summarize them. I have many, many questions, especially of Mr. Gordon, more questions than you have testimony, I think.

Mr. GORDON. Since my last appearance before you, Mr. Chairman, the National Marine Fisheries Service has made substantial progress in meeting its responsibilities for conserving the Nation's living marine resources, managing them for long-term yield, and helping the domestic fishing industry reap optimal benefits from these priceless renewable resources.

For example, we have continued measures to insure access by American fishermen to fishery resources on the high seas. We have upgraded stock assessments of commercial fish species. We have refined population estimates for protected species. We have gained data on habitat requirements and productivity potentials for various species heretofore insufficiently utilized.

We have funded cooperative programs to encourage private sector research and development. We have provided vital information to help American fishermen gain access to foreign markets and to domestic markets supplied by foreign products. We have aggressively pursued our fish and chips program.

I have recently reorganized the NMFS headquarters to reduce overhead. The two gentlemen who are with me will play a vital role in that aspect. We are also strengthening our partnership with other Federal agencies, the States, the commercial recreational fishing industries, conservation groups and other constituents seeking approaches to fishery program management that will accomplish the same goals with the expenditure of fewer Federal dollars.

In fiscal year 1984, the budget request includes a total of $108.2 million to fund essential program activities. This includes $92.4 million for operations, research and facilities, $1.75 million for the fishing vessel gear damage compensation fund, $250,000 for the fishermen's contingency fund, $1.8 million for the fishermen's guarantee fund, and $12 million for the foreign fish observer fund.

During 1984 we propose accrued savings of 389 positions and $54 million by reducing programs which do not directly support NMFS management of living marine resources and by terminating programs which should be returned to others.

An increase of $5.1 million is being proposed for the foreign fishing observer fund to expand observer coverage. This program is financed totally through fees collected from foreign vessel owners operating within the U.S. fishery conservation zone. Disbursements from the fund can only be made to the extent an amount is provided by appropriation acts.

Legislation enacted at the end of the 97th Congress requires in cases where NMFS is unable to provide its own observer a vessel must obtain a private observer certified by the Department. We believe that essentially full coverage will be obtained by early calendar year 1984.

No changes are being proposed in fiscal year 1984 for our three claims programs—the fishing vessel and gear damage compensation fund, the fishermen's contingency fund, and the fishermen's guarantee fund. Supported by user fees, this can only be paid out where appropriated.

We are not requesting funds for the fishermen's loan fund at this time since the administration believes the improvements in the economy will render direct subsidy unnecessary. The administration proposes that no commitments to guarantee fisheries loans be made in fiscal year 1984 as part of its overall credit reduction efforts, and that all Saltenstall Kennedy fund receipts be transferred to offset budget requirements of the operations research and facilities account. Legislative action will be proposed for a loan guarantee limitation and the transfer of S-K funds.

Speaking briefly about the NMFS budget structure, previously 26 separate line items describing program and function responsibilities in the O.R. & F. appropriation alone, we have changed our budget so we now have 10 line items to reflect the responsibilities. It achieves some simplicity in our budget.

I would like to discuss some of the program changes proposed in this budget and the future direction of the major programs and activities. Our information collection and analysis activities will focus on continuing essential fishery and protected species stock assessment services and maintaining essential catch data and industry economic information with emphasis on resources that will be under management and for which the Federal Government has clear responsibility.

This focus results in substantial dollar and manpower savings while continuing to support Federal management and industry development initiatives and providing the critical information necessary for development initiatives.

Timely scientific information on living marine resources, their habitat and their uses are needed to support informed public and private sector decisions on optimum use of these renewable resources. Currently, 18 fishery management plans and 7 preliminary management plans are in effect. We expect an additional 8 fishery management plans may be implemented in fiscal year 1984.

We are proposing to reduce the acquisition of lower priority information. The 1984 budget would terminate our role in aquaculture development in anticipation of increasing private sector participation in developing fish and shellfish culture systems. These types of activities are inappropriate for the Federal Government to pursue in times of fiscal constraints. We are requesting $55.8 million in 1984 to maintain needed information acquisition and dissemination capability.

The budget also includes funding for chartered ships which will be used to conduct resource surveys and other research except when NOAA vessels are more cost-effective. We expect substantial savings.

Our conservation and management programs will focus on implementing management regimes for fisheries with the highest priority needs. We are working with the regional fishery management councils to determine which fisheries are in the greatest need of regulation, whether the benefits of regulation outweigh the costs, and whether a Federal role or a Federal-State partnership is warranted.

We are continuing to encourage the consolidation of present fishery management plans and the adoption of multiyear plans which remain in place until amended. This will reduce the number of regulations and generally increase efficiency.

Marine recreational fisheries and industries dependent on them will continue to receive attention in agency programs because of their growing economic and ecological value. The sheer magnitude of the recreational catch is also significant. Our agency has adopted a new policy that will more fully integrate marine recreational fisheries into NOAA's major programs and activities.

We are currently working with the U.S. Travel and Tourism Administration of the Department of Commerce and the Sport Fishing Institute regarding development of recreational fishing information of interest to foreign tourists. We will pass this on to those overseas entities.

As a part of NOAA's "regionalization" strategy, our regional directors will be playing a larger role in the review and implementation of fishery management plans. Linked closely with this is closer cooperation with the States, especially those with interjurisdictional fishery stocks. However, the States will need to accept greater responsibility for support of fisheries under their jurisdiction.

In fiscal year 1984, $18.4 million is requested to provide for the implementation of the highest priority domestic and international fishery management measures. We will continue our basic management programs for the protection of marine mammals and endangered and threatened species for which NOAA has statutory responsibility.

However, we hope to realize some savings by strengthening our partnership with the States. We anticipate that management responsibilities for some marine mammal species will be returned to the States. Indeed, a recent amendment to the Marine Mammal Protection Act simplifies the mechanism for returning management authority to the States.

We also anticipate better integration of our habitat conservation activities with fishery management and development needs in recognition of the need for a balanced multiple use of all the Nation's marine resources. It should be noted that NOAA-approved coastal zone management programs are now established in most coastal States.

Since much of the critical fishery habitat is under State jurisdiction, the States will need to accept a greater responsibility for protecting the habitat and the productivity potential of the Nation's living marine resources.

In the Northeast region, we are examining techniques to identify the most critical marine habitats and focus our resources in those areas. This prototype will be studied for application in other regions. In addition, we are currently developing a policy which will further clarify our role and objectives in habitat protection.

In order to insure foreign and domestic compliance with Federal management regimes for fishery resources and protected species, we will be continuing our enforcement and surveillance efforts in cooperation with State and other Federal agencies. We are requesting approximately $8.3 million for enforcement and surveillance in fiscal year 1984.

We are proposing to reduce management operations where management is not critical or where programs should become the responsibility of the State, local, or private entity. Major U.S. fisheries are already under approved management plans and the work of the regional fishery management councils is shifting from the preparation of fishery management plans to monitoring their effectiveness.

Additionally, Federal savings can be realized through a greater assumption of responsibility by State governments to overcome interjurisdictional fisheries management and resource enhancement barriers.

Mitchell Act requirements have been substantially met through Federal construction of salmon hatcheries and fish passage facilities and their operation and maintenance could be funded through user charges assessed to the beneficiaries of the Columbia River water resource and hydroelectric power projects.

We are proposing to return responsibility for administration of social services and the operation of equipment and facilities on the Pribilof Islands to the local community. We have submitted a fiscal year 1983 supplemental budget request for $20 million to set up a trust fund to facilitate the Pribilovians' transition to a self-supporting economy.

Fur seal harvesting in accordance with Federal quotas and initial processing will also be turned over to a native corporation. Legislative action will be proposed.

Our fiscal year 1984 State and industry program reflects the proposed withdrawal of Federal support for programs which are more appropriately State or private sector responsibilities. It also reflects a shift in the NMFS role in fisheries development and industry services from direct responsibility for program execution with industry participation to acting as a catalyst for private sector initiatives.

We propose to maintain program expertise to support this catalytic function of encouraging private sector initiatives in foreign and domestic market expansion, technological innovation, and maintenance of product quality and safety standards. We are requesting approximately $3.2 million to maintain a core fisheries development program and financial services admnistration.

As mentioned earlier, we are proposing to terminate Federal grants to the States for fisheries management and development activities and to industry for research and development projects. We will continue to perform certain activities, such as international trade negotiations, export marketing and certain product quality and safety activities which support our voluntary seafood inspection program.

The latter is a good example of a self-supporting program paid for by businesses that subscribe to the service. We intend to meet future demands for our inspection services primarily through use of cooperative inspection agreements with the States and the U.S. Department of Agriculture. These agreements provide for training and cross-licensing of State and USDA inspectors.

Our efforts to assist the fishing industry through the support of joint ventures between the domestic industry and foreign countries will be continued as an interim measure, pending development of full domestic utilization. These primarily involve over the side sales of nontraditional species by domestic harvestors to foreign processing vessels.

To date, although changes are being made, joint ventures have generally served our fishermen well. They have provided economic opportunities, transferred certain technologies and provided the type of knowledge and incentives necessary to develop wholly domestic use of resources in the FCZ in the near future. Of course, as domestic processors develop the capacity to handle the domestic catch, joint ventures of this type will phase out.

In summary, Mr Chairman, there will be changes in the way we in the National Marine Fisheries Service do business. We are looking at all of our activities and responsibilities in a new light. Collectively, the Federal Government, the States, the commercial and recreational fishing industries, conservation groups, the academic community, and other constituencies confront a significant challenge.

Working together, I am confident that we can meet that challenge, but it will take a lot of creative thought and action on all of our parts. We and the Fishery Service look forward to working with you, Mr. Chairman, and other members of this committee and Congress in achieving the national fisheries goals.

I would now like to discuss the authorizations expiring at the end of the current fiscal year, the Atlantic Tunas Convention Act, the National Aquaculture Act, and section 4 of the Fish and Wildlife Act.

The Department fully supports the authorization of the fishery program under the Atlantic Tunas Convention Act, which implements the International Convention for the Conservation of Atlantic Tunas. This treaty established an International Commission for the Conservation of Atlantic Tunas, the international organization with key responsibility for management and conservation of Atlantic tunas and tuna-like fish.

Since its inception in 1969, ICCAT has effectively refined its role in obtaining and coordinating information for maintaining stocks of Atlantic tuna and tuna-like fish. In addition, ICCAT has participated in the joint formulation of regulatory proposals for submission to the parties to the convention.

There is a lot of detail in this submission, Mr. Chairman. I will not go through that, but in summary I would like to strongly urge continuing congressional support for this international organization and for reauthorization of the fisheries program under the Atlantic Tunas Convention Act.

I also appreciate the opportunity to appear before you to present the administration position and authorization of Public Law 96-362, the National Aquaculture Act of 1980, which is scheduled to expire September 30, 1983. In support of the President's program to reduce Federal spending and return responsibility for innovation and investment-risk assessment to the private sector, as well as relying on the States and industry to asume greater responsibility for research of direct benefit to them, we oppose reauthorization of this act.

There are a lot of benefits that have accrued to this already. I will mention a few. For example, the Texas Parks and Wildlife Department has built the world's largest saltwater fish hatchery in Corpus Christi. When in full production it will produce about 20 million redfish fingerlings for planting in Texas bays. The first releases are anticipated by early summer.

In addition, the South Carolina Wildlife and Marine Resources Department will complete by the end of 1983 a new aquaculture research center. Consolidated Edison recently contracted with a private firm to operate, on the Hudson River, the largest striped bass hatchery in the country, capable of producing about 600,000 fingerlings a year. The first releases from this will occur in late summer.

Two of the largest aquaculture feed producers in the United States have combined their efforts to develop an international research center. Working with internationally known consultants, the center will coordinate basic research on new feeds and feeding strategies. The producers are setting up an aquaculture advisory board comprising members from industry, Government, and the academy.

In addition, many States have already developed or are in the process of developing aquacultures plans. In view of these facts and in support of the President's desire to cut unnecessary Federal spending, we oppose reauthorization.

I am also pleased to provide the administration's views on reauthorization of the Fisheries Loan Fund. The American Fisheries Promotion Act authorized transferring foreign fishing fees into a loan fund to provide capital for a domestic fisheries countercyclical assistance program. The first priority in disbursing funds was loans to borrowers under the fisheries obligation guarantee program.

The second priority was loans to avoid default on unguaranteed debt which had financed vessel construction, reconstruction or reconditioning. The last priority was loans to cover vessel operating expenses in those years when the vessel owner suffered an operating loss.

In foreign fishing fees, $34 million has been deposited in the loan fund through December 31, 1982. Estimated foreign fishing receipts through October 1, 1983, total another $27 million to $30 million. We are now proceeding to loan the $10 million appropriated for fiscal year 1983.

The rapid growth of Federal activities in the last decade has made the Federal Government a heavy participant in the U.S. credit market, but the administration is making a major effort to diminish this role. We are opposed to extension of the Fisheries Loan Fund because we believe that all industry will benefit more from a less preponderant Federal presence in capital markets.

The administration recognizes, however, that the Government has a legitimate interest in protecting its investment in outstanding loans guaranteed under the fisheries obligation guarantee program, and in recovering loans already made under the Fisheries Loan Fund. Therefore, we are interested in exploring alternative mechanisms to protect this investment.

This, Mr. Chairman, concludes my testimony. I would be pleased to respond to your questions.

The CHAIRMAN. Thank you, Mr. Gordon.

Senator Trible, do you have any opening statement you want to put in?

Senator TRIBLE. No, Mr. Chairman, thank you.

The CHAIRMAN. Mr. Gordon, can you tell me the total amount of cuts that will be proposed for the Northwest region and the Northwest Fisheries Center? Can you tell me which of these cuts will directly affect Oregon?

Mr. GORDON. Approximately $22 million as currently in the Northwest region.

The CHAIRMAN. $23.4 million, I think, isn't it?

Mr. GORDON. That is about correct. Some of these are reimbursable so I am only speaking of appropriated money. In the Northwest Center there is approximately $20 million. The reduction will be approximately $7 million—$7.71 million.

In Oregon, the impacts will be principally in the Columbia River hatchery operations, where in fiscal year 1983 $9.954 million was allocated for the river program, and the proposed cut would leave

$3 million for fiscal year 1984. The aquaculture reduction would relate principally to Newport, $300,000.

There is approximately $289,000 in salmon research and the research surveys to look at the ecological effects of the Columbia River dams. The National Marine Fisheries Service cuts would not be at the Center in Seattle but would be at the Center in the Southwest, located in LaJolla with a field station at Tiburon, these reductions include some rockfish reproduction, $125,000; predator prey studies——

The CHAIRMAN. Let me stop you. I am asking questions about the Northwest at the moment. I want to ask you if the figures I have are right.

We are talking about the elimination of 110 Federal positions and $23.4 million in the Northwest. Are those figures approximately correct?

Mr. GORDON. Yes, sir.

The CHAIRMAN. Because of the cut for Oregon, and these are the figures I have from our people, Oregon will lose approximately $5 million and 240 additional jobs.

Let me ask you this: Of the proposed cuts in the Northwest region, which programs have the States agreed to assume responsibility for?

Mr. GORDON. In discussions that we held last year with the States relative to virtually the same proposed reductions in the fiscal year 1983, only the State of Washington indicated that they would pick up a substantial portion of the reductions. The State of Oregon indicated they could not pick up most of the cuts, nor could California pick up most of the cuts.

The CHAIRMAN. Can you tell me how much the State of Washington thought it could pick up?

Mr. GORDON. They were noncommittal, sir.

The CHAIRMAN. Basically what you have got at the moment is none of the States have agreed to pick up anything, isn't that correct?

Mr. GORDON. That is correct.

The CHAIRMAN. That is the same thing we had on the sea grant colleges last week from Dr. Byrne. It is the same thing I am finding all the way along. It is the same thing I am finding in every area related to marine science, marine fisheries, anything else. It is cut, cut, cut, and the States have agreed to pick up nothing.

The next question. What is the current cost to the Federal government of the Columbia River program and what is the estimated value of the fish produced by the hatcheries in that program?

Mr. GORDON. Since funding started in 1949, sir, I believe about $128 million has been spent in construction of hatcheries, fish ways, stream clearance activities, maintenance and operation of all facilities and the like.

The CHAIRMAN. What is the current cost?

Mr. GORDON. In the Columbia River program, the cost of just the operation of the facilities and fish passage and the like is just under $10 million.

The CHAIRMAN. What is the value of the fish produced?

Mr. GORDON. We are producing approximately 30 million pounds of salmon returned from that production. At today's prices, that would come pretty close to $100 million or better.

The CHAIRMAN. Someplace between $120 and $190 million, isn't it, depending on what the poundage value is?

Mr. GORDON. The current price, that is right.

The CHAIRMAN. That is a very good return on the money.

Mr. GORDON. Yes, sir.

The CHAIRMAN. Can you tell me specifically which hatcheries on the Columbia River would be closed under the proposed budget cut in the Columbia River program?

Mr. GORDON. We initially proposed closing a number of the hatcheries. After further consultation with the States, they asked if we would afford them the opportunity to set their priorities on which ones to maintain.

The CHAIRMAN. You mean if they will pay for them?

Mr. GORDON. No, with the remaining funds in the 1984 budget.

The CHAIRMAN. Originally you had a list of about 19 hatcheries that you were going to close.

Mr. GORDON. That is right.

The CHAIRMAN. Now are you telling me you are going to give the States an option as to which of the 19 should be closed and which others kept open?

Mr. GORDON. Yes, sir.

The CHAIRMAN. But you are still going to have to close roughly 19 hatcheries unless you have some that cost less than others, and you can maybe keep two open and close one if the bigger one is more expensive.

Mr. GORDON. That is correct, sir.

The CHAIRMAN. But your initial list was 19 hatcheries.

Mr. GORDON. Yes, sir.

The CHAIRMAN. Senator Trible.

Senator TRIBLE. Thank you, Mr. Chairman.

Mr. Gordon, what is your assessment of the general health of the fishing industry in America?

Mr. GORDON. I think it is pretty good. There are certain sectors of it that are having and will continue to have for some time economic difficulties because of the price of fish or the status of the stocks. But in general, I think, overall the industry is in reasonably good shape compared to other sectors of the economy.

Senator TRIBLE. There certainly are general problems in the economy, but it seems to me that the fishing industry is not doing particularly well. There are a number of indications that support that proposition. We look at the fishing vessel obligation guarantee program and we see during the 1970's credit extended to the most creditworthy operators resulted in very few, if any, defaults.

The last 2 years there have been dozens. The salmon industry, of particular importance to the chairman of the committee, has a huge carryover of inventory from year to year. Recently in Virginia one of the largest operators on the east coast filed for reorganization under the bankruptcy clause.

It seems to me that the industry, perhaps reflecting in part the depressed state of our economy, is in serious trouble. It calls into question, I think, the funding levels for the National Marine Fisheries Service proposed by the administration.

Let me ask you this: Do you see any irony in the fact that we are spending tens of billions of dollars on agriculture with another multibillion dollar bill pending before the Senate, and we are only proposing $92 million for NMFS?

Mr. GORDON. We have considered and have used in a sense some of the agricultural authorities to assist in providing assistance to the industry. Some industries have been very successful. The fisheries have borrowed much from production credit in the past and are beginning to use it more.

We are attempting to work closely with a number of other programs in agriculture and are attempting to tap into their resources. So it is not an easy question to respond to without looking at the progress we have made there.

Senator TRIBLE. I think that agriculture and fisheries are both vitally important to our economy. I just think that perhaps we are not doing enough in the area of fisheries, mindful, for example, of the balance of trade deficit of $2 to $3 billion in fish and food-related fish. The fact that probably 300,000 people in America depend on fishing and processing industries for their jobs. There is so much more that we can do. I know that you share that view. That troubles me even more about the funding proposals.

Let me ask you a parochial question. The proposal would embody a 57-percent funding reduction for the Mid-Atlantic Fishery Management Council, the council that I think has done an outstanding job. How can that council continue to function with a 50-percent level reduction of funding?

Mr. GORDON. We do not propose to cut all allocations to the councils on a pro rata basis. The overall cut is indeed 57 percent. Some council's activities would not be, by necessity, be as great as others. If the appropriations are available to us at that level, we would work with each of the councils to assign money to them to carry out their activities on fishery management plans of high priority, which would mean some councils would potentially have very little to operate with whereas others would have a larger amount.

We would simply look at the management plans that are completed and under development and try to assist the councils as best we could to monitor or to amend those management plans as appropriate during the times of fiscal constraint.

Senator TRIBLE. While the council, in my judgment, has done a good job of serving Virginia's fishermen by forming an interim ground fish management plant, you and I worked on that in the past. It proposed a plan amendment for Atlantic squid which I think has great possibilities for my region. I would hope we could provide an adequate level of funding.

I give back the balance of my time, Mr. Chairman.

The CHAIRMAN. Senator Stevens.

Senator STEVENS. Thank you, Mr. Chairman.

I apologize for not coming in earlier. I do have some questions.

I am really concerned about the statement you have made concerning any extension of the Fisheries Loan Fund. Our perspective in Alaska—and I think this is true for the whole Pacific Northwest—there has never been a greater need for capital than there is now, particularly if we are going to continue what I believe is the goal, and that is to eventually—and that is, the capability of harvesting all of the fish that is within our 200-mile zone.

Now, last year we took the cap off the Fisheries Loan Fund. You say you want to find another mechanism to participate in this activity. Taking the problem in our area for an example, the Japanese are still harvesting, what, about 2.4 billion pounds of one species off Alaska, pollock. And we are trying desperately to make a breakthrough and be able to harvest that fish, because a substantial portion of that is exported back to the United States. We see no reason why we should allow fish in our zone to be harvested by a foreign nation in order to be sent back if we can compete. We are not asking for anything that the Japanese do not have. They subsidize their vessels. They subsidize their mother ships. They subsidize their transports, their cargo vessels.

There is every reason to believe now that they do not even have any taxes that apply to offshore activities as far as the fishing industry is concerned. So I just cannot understand why the one mechanism that will help project American fishermen into the position where they can harvest fish—that is the loan guarantee fund—would be abolished, particularly when I cannot remember an instance when the fund—the Federal Government never had to pay a dime to support this fund.

Why is it you persist in trying to do away with it?

Mr. GORDON. Principally, the administration feels that the continued presence of the Federal Government in the capital business, the credit business, has a negative impact on the direction interest rates are going. If we could turn responsibility for loans over to the private market, the interest rate would come down. The industry would benefit from reduced interest rates in general.

Senator STEVENS. Do you think if we turned this guaranteed loan fund over to the private sector the interest rates would be less? Most of them are guaranteeing loans. They are out in the fifth world west of Anchorage. How many people ever get out there? How many bankers do you think from New York City ever went out there, or even Seattle?

The impact of trying to borrow—and each one of those boats must borrow at least $2 million now. Do you know where you end up when you want to start borrowing more than a million and a half dollars? I know. You end up back in New York City. There is no other way. And those people do not know anything about the Aleutian Chain. They do not know anything about the conditions out there. They have great fear. And the one thing they want is they want that stamp of approval just like you would put on beef. That is all you are giving that loan. You have not lost a dollar on any of those loans, and you want to stop the guaranteed program which keeps the momentum going so that we can develop the fisheries. And I think the same thing is true throughout the country, unless the banks are somehow involved in fishing somehow, and we have had one bank that has been very aggressive, and I think has really overextended itself in trying to assist. But no bank has the capability to keep up with this.

Do you know we are talking about what $3 billion in trade deficit is? We could eliminate $3 billion from our trade deficit.

Mr. GORDON. When one looks at the top five trade commodities that contribute to trade deficit, Senator, I guess it is a bit ironic that of all of those—steel, oil, cars, textile, and fish—that fish does make up about 12 percent of that, and it is one area where there is a tremendous growth potential and where we can offset not only the imports but perhaps create a very positive movement in offsetting some of the other deficits.

Senator STEVENS. Pardon me. May I ask you one more question? You are also dealing with a situation where if we could take that fishery over and process that fish and distribute in our own country, half of that catch is equal to one fish sandwich per day in every one of the school lunch programs, plus one fish meal per day per family in the United States at an extremely low price.

I am sure you know that is a fish product that is selling for 5 and 6 cents a pound, and yet we are letting it go out and come back, and people are paying—what are they paying, Bill—when it gets to fish sticks having been transported to Korea and back to the United States, the price is terrific.

Mr. GORDON. The current price of pollock blocks made in Korea is about 65 cents, and under those conditions American fishermen indicate they cannot economically compete.

Senator STEVENS. They cannot economically compete because one of the reasons is it costs them 8 cents to transport the pollock from Alaska to the South 48, where it only costs the Japanese 8 cents to transport it from Alaska to Korea to the United States, and one place to be processed and one place to be brought back to be consumed. The price structure has to break somewhere.

I am sorry for taking so long. I hope I will get another chance to talk to you about some other questions.

I think the key to this fishing industry today is to maintain the ability of the Federal Government to assure the banking and financial institutions of the country that these loans are sound and to continue to guarantee them. If the Department could show us that there has been a loss ratio that was anywhere near any of the loss ratios on the guaranteed loan programs we have done away with, I would join in doing away with it. But this one, there has been no loss, and I cannot understand an unwillingness to perform this service which assures the continued flow of capital into one of the areas that needs it, that needs it more than anything I know.

Mr. GORDON. The current default rate is about 5 percent, sir, in the obligation guarantee program. We may have to seek additional borrowing authority from the Treasury to cover those on a temporary basis. But we feel with progressive management of those accounts, no loss will accrue to the Federal Government in the long run.

The CHAIRMAN. Ted, I will make you a bet we will find out that those New York banks have been making loans to the fishing industries of Mexico and Peru, and that house of cards is about to fall. They are going to want us to bail them out because they will not be able to collect on those loans.

Senator STEVENS. That is one of the questions I intend to ask, Mr. Chairman, when we get into this area of what we are bailing out. I also think in our foreign aid programs we have some soft loan money; we take soft loan money into these other countries, and we encourage them to institute guaranteed loan programs using this soft loan program.

Also, when the change was made, Mr. Chairman, that required 100-percent financing of guarantees, that is when this concept went out the door. Even though there has been no loss yet, there has to be a fund in the Treasury, as I understand it now, to back up 100 percent of this guaranteed loan program. I hope this year to legislate that away. I think that was improper. I do not think the administration had that authority, and I think Congress should say you should set up a reasonable sinking fund for any guaranteed program, and there is no need to give us the budgetary problem that we have now.

Did you know every single loan that is guaranteed by the Federal Government is 100 percent financed in the budget as though it was a complete loss from the day it is made. That is the thing that is destroying the protection that these people have that gives them the ability to deal with the large banking institutions and financial institutions of the country, who I think want to deal with them but do not have the capability to know enough about the program. There are not enough people involved, and there is not enough knowledge involved.

I do thank you, Mr. Chairman.

The CHAIRMAN. Senator Lautenberg.

Senator LAUTENBERG. Thank you, Mr. Chairman.

Due to the lateness of my arrival, I will yield my time back. Thank you very much.

The CHAIRMAN. Mr. Gordon, let me pursue more about the hatchery program. You have these 19 hatcheries on your list, but you have indicated that you might be willing to drop some and keep others depending upon the priorities of the States. I want to make sure that I understand what you are saying. Whether or not the States come up with any alternative funding, you are planning to make that cut in the hatcheries program no matter what decisions may be made as to which hatcheries should be kept open.

Mr. GORDON. That is the way the proposed budget was put forward, yes, sir.

The CHAIRMAN. The 1984 budget terminates grants to States under the Anadromous Fish Conservation Act and the Commercial Fisheries Research and Development Act. What percentage of this money is used by the Fisheries Service in support of Federal fisheries work such as that under the Fishery Conservation and Management Act?

Mr. GORDON. From a national standpoint I do not have an answer. We would have to provide that for the record. In terms of Oregon, I believe there is about $105,000 in 1983 in Public Law 88-309 and $683,000 in 1982 in Public Law 89-304. Much of the anadromous was spent on salmon and other species in the coastal streams as well in the Lower Columbia.

The CHAIRMAN. Again, from the administration's budget figures is it not true that about 25 percent of the funding under the programs I mentioned goes to support the Federal activities?

Mr. GORDON. That is approximately it from the national standpoint, yes.

The CHAIRMAN. How many of these ongoing projects are going to be terminated as a result of the sudden elimination of funds?

Mr. GORDON. I suspect that most of them, if they were terminated abruptly, will be done away with.

The CHAIRMAN. Gone, just like the sea-grant colleges.

Mr. GORDON. Yes, sir.

The CHAIRMAN. Lastly, have any of the States indicated a willingness to take over the funding responsibility for any of the work that is done under either of these grant programs?

Mr. GORDON. Only to the degree that some States have proposed an additional tax, often at the fishermen's request, on salmon to institute some salmon aquaculture, salmon hatchery type of activity. Both California and Alaska have picked up on this, and they are running in their coastal communities some restoration or enhancement activities, sir.

The CHAIRMAN. Maybe they will be lucky. I do not know what the budget situations are in the States of Alaska and Virginia and New Jersey, but Oregon is looking at another $300 to $400 million budget cut in order to meet their constitutionally mandated balanced budget requirements. And I would be surprised if they would pick up the additional cost of any program that is now partially funded by the Federal Government and partially funded by the State.

I think just the reverse is going to happen. As they start looking around the State to see where they can save money, they are going to say that if the Federal Government is going to pull out its share of this, then they will pull out their part. They have to save money.

For the life of me, I can't imagine why this administration thinks—again, I cannot speak for the other States or members of this committee—that the States are going to come up with the money. You say they may propose new taxes. Everybody proposes new taxes. I doubt if many are going to be levied for the purpose of picking up the cost of these programs. But that you do not have to answer.

The 1984 budget also proposes laying up a proportion of NOAA's fleet and arranging for charters to do the research work instead. I want to know if this decision was made as a result of a region-by-region analysis. I want to know if there are adequate charters available in all of the regions of this country, and what guarantees are there that the charters will indeed provide savings.

Mr. GORDON. There has been no region-by-region study, sir. The principal experience we have had in chartering vessels has been in the Pacific Northwest, where in my view because of the present downturn in fisheries and the like, there are adequate vessels available for most of the types of research that we would do.

The CHAIRMAN. I might say that if we continue with the budget cuts you have proposed, they will have a lot more vessels available for charter work because they will not be fishing. You have the dog chasing its tail. You are going to cut the budget. Without programs to help expand our fishing industry, especially during tough economic times, many boats are unable to fish. Therefore, they are available for charter because they have nothing else to do.

Mr. GORDON. We have very little experience except for in the gulf and in small vessels along the Atlantic seaboard in chartering vessels of the magnitude of the NOAA ships that are being laid up.

The CHAIRMAN. An accurate answer to the question is you basically have very little data or research to justify the conclusion you have come to.

Mr. GORDON. Yes, sir.

The CHAIRMAN. Senator Trible.

Senator TRIBLE. No further questions. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Stevens.

Senator STEVENS. I did have one other question, if I might.

I do not want to seem antagonistic, because I certainly am not, Bill. You have done a tremendous job working with us. I do not know. Maybe behind the scenes you are advocating our point of view—I hope you are—on that loan fund.

One of the problems we have worked on in the past has been the problem of financing the shoreside activities, particularly in terms of the CCF, the capital construction fund. The Senate, with the help of the chairman and others, we have gotten it through. We have twice now taken the position that the capital construction fund for successful fishermen could be pooled and brought ashore on a cooperative basis to modernize or to build processing facilities, which is a great need—again, an absolute need if we are to get into the fishing industry in the numbers that I think are necessary.

The House has not agreed to that, and this year we are working on a bill to authorize—to change the basic authorization law. We previously had put those amendments on the appropriations bill, as you know.

Is it going to be possible for us to have the support this year of the administration on that bill, do you know?

Mr. GORDON. To my knowledge, sir, the administration has not taken a position on the bill. I would comment, though, that it is a tax-deferred bill. The aspect of it is not a tax exemption.

Senator STEVENS. Wait a minute. Wait a minute. You understand these are funds that have already been set aside under existing law. They can either be spent to modernize the vessel——

Mr. GORDON. Yes, sir.

Senator STEVENS [continuing]. That they have, or they can be spent onshore, if they are spent to modernize the vessel at this time. The question, particularly the people who are accumulating this CCF are people who have already modernized their vessel or acquired a new one. If they come ashore, the circle is ended. There is no longer a CCF attached to it, income received from processing onshore, so it terminates the circle. It terminates the process as far as CCF is concerned.

Mr. GORDON. Yes. Once it comes onshore.

Senator STEVENS. I think that is a way to take—there are some, I understand, $200 million out there in the Pacific Northwest that would come ashore for processing if this incentive was there. If it does not go ashore, it is going to go into new vessels, that would go into additional species and increase their income to the detriment of other portions of the fishery, and you will have the contingent problem with what to do with the CCF in the future.

I do think the CCF has worked, and it is necessary for some of the smaller vessels to still. But we ought to have a place for that money to come ashore.

Mr. **Gordon**. Currently I think it is about $160 million in those accounts that have not been utilized. It may be a bit more or a bit less.

You are correct. If the Capital Construction Fund continues, the only way the fishermen can use those moneys is either take it out and pay the taxes and the penalties on it or build another vessel, which often exacerbates the problem in another fishery that the vessel enters. It cuts up the pie into smaller pieces for those participants in it. So it is a problem for the fisheries manager when we overcapitalize because the only incentive for the fisherman is to do that, to build another vessel.

Senator **Stevens**. The onshore capital need for processing is half a billion dollars at least.

Mr. **Gordon**. I do not know if there is any good estimate on how much in total, but for example some of the investments in Alaska, when you are building a plant out in the Aleutian chain, could require a $12 to $15 million investment, so the capital needs are very great.

Senator **Stevens**. Who better to make that than the people who have those CCF's?

Mr. **Gordon**. I personally agree.

Senator **Stevens**. Thank you.

The **Chairman**. Senator Lautenberg.

Senator **Lautenberg**. I will pass.

The **Chairman**. Mr. Gordon, how many vessel days of research activity will there be under the 1984 budget as opposed to 1983 and 1982?

Mr. **Gordon**. It depends, sir, on the mix that is used but the last estimate we are looking at was about 1,750 vessel days for 1984 under the proposed budget as compared to about 1,700 vessel days in 1983 with the full funding for the vessels.

The **Chairman**. Specifically, the figures I have are 1,764 days in 1982, 1,746 days in 1983, and a projected 774 days in 1984. I understand it depends upon the mix, but it is clearly over a 50-percent cut from what has been our standard for the past 2 years at least.

Cuts in the fisheries industry information program would appear to negatively impact fisheries management and development work in both the recreational and commercial sectors. Do you agree with this assessment? And if you do, why are these cuts being made?

Mr. **Gordon**. The cuts would result in less information being collected, less timely analysis of the information, and less availability of information to the industry. We would be forced to focus our attention only on the high priority fisheries, so the marginal fisheries of low priority would not receive the degree of attention that they received in the past.

The **Chairman**. Do you expect someone else to pick up that cost?

Mr. **Gordon**. It is very doubtful, sir.

The **Chairman**. So to some degree you are going to have significant hampering of information dissemination, or, beyond that, you are not going to have the information to disseminate that we used to disseminate to our fishing industry.

Mr. **Gordon**. That is correct. It will not be as timely or as accurate because of the loss of the data base. In the short term we can perhaps live with it. It will not cause that much of a disruption. But if it were to continue over a long period, it will require fishery managers to be far more cautious in establishing stock sizes resulting in potential foregone income from fish that could be taken if you had more accurate data.

The **Chairman**. Do you know of any group yet that is going to pick up the funding for the market news report?

Mr. **Gordon**. We are working now trying to find outside groups that would pick up part of it, sir, and produce it like a newspaper report of sorts. We think we will be successful in finding someone who is willing to pick up on that side of it, but we are not at all certain the collection of data can be done by the private sector.

The **Chairman**. But you have not got anybody yet.

Senator **Stevens**. Would the Senator yield?

The **Chairman**. Yes.

Senator **Stevens**. Is a similar attempt going to be made on the agriculture area, all of those agricultural reports?

Mr. **Gordon**. I am not certain whether agriculture is moving in that direction or not, sir.

Senator **Stevens**. I see no reason for the fisheries to be singled out, having the burden shifted to them at this time.

The **Chairman**. That is because they have not counted it as a food producing activity. That and forestry they put in a different standard.

Mr. Gordon—and this one particularly aggravates me—last year we added an amendment to the gas tax bill regarding the S-K fund, the Saltonstall-Kennedy fund. An amendment was enacted which specifically prohibits the transfer of any money from the S-K fund for use in any other program. It is in the law. However, the budget that you have submitted asks for all of the moneys in the fund—that is about $35½ million—to be transferred to other uses at NOAA.

Why, in the clear face of what we passed last year, is congressional intent being ignored? Or perhaps the people who prepared this budget cannot read. It is in the law. It is supposed to be observed. And you are coming up here making a different recommendation.

This is not simply intent. It is very clear you cannot transfer the money.

Mr. **Gordon**. The administration, I believe, has long felt that the source of funds—the tariff on certain imported products—was a general part of the tax structure of the United States.

The **Chairman**. I know what they feel, but what about the law?

Mr. **Gordon**. They are proposing that we would come forth with a legislative amendment which would repeal that, or I am told that if the Congress supported the proposed budgets that the appropriations would supersede that.

The **Chairman**. Any subsequent law supersedes the previous law, but it seems to me the administration is thumbing their nose at us. They do not care what we just passed; 2½ months ago we passed that gas tax bill with this provision on the S-K fund.

Let me ask you another one. Another amendment that was added to the gas tax prohibits the administration from placing limits on Federal loan guarantees for fishing vessels and processing plants, yet the budget requests termination of the program.

Again, it is something we have only passed 2½ months ago. Why is the administration recommending termination? Did this come from OMB?

Mr. GORDON. No, sir. It came from within the Department.

The CHAIRMAN. Why does the Department recommend this when within the last 2½ months we have just passed a different directive?

Mr. GORDON. We are supporting the administration's position of getting out of the credit business. That is one aspect of it we are taking a hard look at, with the proposition that we get out of it.

The CHAIRMAN. I thought Senator Stevens' question was very good about agriculture. We do not seem to be getting out of the agriculture credit business with any degree of rapidity.

Senator Trible.

Senator TRIBLE. No further questions.

The CHAIRMAN. Senator Stevens.

Senator STEVENS. Mr. Chairman, the real problem about the revolving loan fund is there is the feeling that exists, and I think Mr. Gordon is reflecting that, the position of the administration, the feeling exists that if there is a guarantee, it allocates credit. In this instance the situation exactly is the reverse. If there is no guarantee, there can be no allocation of credit.

I do have a study going on, Mr. Chairman. I think I have spoken to you about this, or my staff has. We have asked the Library of Congress to analyze all the laws of the United States pertaining to agriculture and to tell us whether there was any consideration given recognizing fishing as a food industry at the time those laws were passed. It is amazing; some of them actually did include fishing. But at the time they were passed, the administration then in power just separated out the fishing aspects and turned it over to the Department of Commerce, or in the old days the Department of the Interior, and fishing was left completely out of the program as it was initiated by the Department of Agriculture. So we have to go back somehow or other and weave this rug back together.

Fishermen have problems that are quite similar to those in agriculture. The chairman is absolutely right. The whole concept of the guaranteed loan funds in agriculture are not only being continued; they are being expanded.

The CHAIRMAN. I would be curious what some subsequent administration's position will be when we get heavily into hydroponics and start growing in water things that usually grow in the dirt as to whether they will count that as some kind of aquaculture program and cut off any kind of credit, or will they still count that as genuine farming?

Excuse me, Senator. Go ahead.

Senator LAUTENBERG. Thank you, Mr. Chairman.

Mr. Gordon, I am sorry I was not here for the presentation of your testimony. It is a subject of great interest to me coming from a coastal State like New Jersey which is 14th in the country in terms of commercial fishing. We also have an enormous business in recreational fishing.

Perhaps you have discussed—and forgive me if this takes us back a pace of two—whether research programs would be continued dispite the budget allotments before us.

Senator Packwood may have asked this before, but do you know whether any of these programs will be picked up by the States? You have not done that kind of research or questioning, have you?

Mr. GORDON. Last year when we were preparing budgets, all the States were queried whether they could pick up on these programs and what would be the impact on these programs. I believe the answers we got last year pertain even more today. Most of the States would be incapable of picking up on the loss of these moneys, and for some States—and I think New Jersey was one of them—it would basically wipe out their ability to conduct a marine-related research activity.

Senator LAUTENBERG. Yes, I think that is true. Unfortunately, we, like so many other States, have budgetary problems that threaten almost all but the essential services in the State. How do you feel personally about these budget cuts? Do you think that you would be able to conduct the level of service that is required for our Nation's fishing industry and our fishing interests?

Mr. GORDON. I believe we can carry on a credible program at that level. But as I said earlier, I think some of the accuracy of our data base, the accuracy of our surveys over the long run, would suffer. In the short term during a period of austerity, I think we can carry on those essential services that keep industry pointed in the right direction.

I am very pleased with the accomplishments that we have brought about in the last year or so in the development of the fisheries, particularly in New Jersey. The private sector in the lower part of New Jersey as well as some of the northern communities, are beginning to pick up and move aggressively to develop some of the underutilized species. Part of that is being done with our assistance, and in other areas through leverage we have been able to bring about. Support is coming from foreign industry counterparts.

I would expect that given the progress that seems to be underway today, that New Jersey would see substantial benefits coming to their fishermen from these activities.

Senator LAUTENBERG. I could use a pun here and say that is probably "fishful thinking." I think we are going to pay a price for this that would not be evident in the short term, but we have species constantly endangered by either overfishing or toxic substances.

Even now I have been reading reports about our bluefish, which have been so abundant, declining in number. I am sure you would agree that the risk that is run is one that probably will not be evaluated really until a couple of years or a few years out. And that is where we run the greatest risk; do you not think?

Mr. GORDON. As we allocate our resources through our scientific laboratories and to our regional managers, we constantly ask ourselves how much is enough and we try to spread it around to get the maximum degree of reliability out of our data base. In the case of bluefish, that population has held very high for a goodly number of years now. There are signs that it potentially will decline. There may be a variability in mother nature. If there is, it is good to forecast that, so that those who would depend on it for recreation in this case could look to alternate opportunities in time to avoid serious disruptions.

It is one of the reasons we principally carry on research of this nature, not just to provide a basis for the regulatory regime but likewise to provide a basis for the investors to see where they want to lay out their marketing strategy or make their investments. It has a dual role.

Senator LAUTENBERG. I assume my time is up.

The CHAIRMAN. Go ahead, Frank.

Senator LAUTENBERG. Thank you, Mr. Chairman.

I just sense from your tone—the way you delivered your comments—that if you had your druthers, those cuts would not be so deep. Do I read you right, Mr. Gordon?

Mr. GORDON. We recognize that working in Government we should all participate in tightening the belt to assist the President and the administration in these times of fiscal austerity. Our budget proposals reflect our best guess as to how we can keep things going in the right direction without dismantling them so badly that we would lose a great deal from it.

Senator LAUTENBERG. These cuts, however, are so extensive that we will suffer the consequence for for a long time in the future. When I see that we still import so much fish, it seems that we have an obligation to continue to protect our industry, to develop our research, try and do better.

Thanks very much, Mr. Chairman.

The CHAIRMAN. Mr. Gordon, is it not true you have already been given a target figure by OMB for the 1985 budget in the area of $60 to $65 million? That is the amount they are looking forward to, and this is not through any kind of prioritizing, they are just saying, this is what you are going to get as far as we are concerned, now try to live with it.

Mr. GORDON. I have not seen any specific guidance, sir, from the Office of Management and Budget. As we prepare for our budgets in future years, we create scenarios reflecting various percentage cuts or various percentage increases. As I prepare my budget, I look at what are going to be the most cost effective and array those mix of programs at various levels both as cuts and as increases. We look forward through the 1985 budget cycle internally doing that.

I will argue for adequate funding to carry on programs in the most cost-effective way. The guidance is still coming. We have not seen it in the agency.

The CHAIRMAN. You have had no—I want to phrase this right—you have had no suggestions from OMB or any other supervisory branch of Government as to what the projected outlines of your fiscal year 1985 budget should be?

Mr. GORDON. As I said, we look at 100 percent—in other words, the 1984 request—as a departure point as proposed in the 1984 budget. We array our programs both up and down, and I will go forward with what I think is the best mix, given the austerity that we are all facing, and argue for programs at the appropriate level.

How that turns out is yet to come. But I have not been told precisely what my budget will be or what the guidelines coming in are.

The CHAIRMAN. You have had no contact from anyone as to what roughly your suggested total budget for fiscal year 1985 ought to be?

Mr. GORDON. Not within NOAA, no, sir, not within the National Oceanic and Atmospheric Administration.

The CHAIRMAN. Let us go to the fishery development foundations, which in my opinion have worked pretty well. How many of these foundations would be able to continue the same level of activity without support from the National Fisheries Marine Service?

Mr. GORDON. Probably none of them, sir.

The CHAIRMAN. That is what I thought. Now let us go to the principal objectives of the National Marine Fisheries Service international fisheries activities. What are your principal objectives as far as international fisheries activities are concerned?

Mr. GORDON. If I may, Mr. Chairman, I would like to have Mr. Blondin respond to that.

The CHAIRMAN. Fine.

Mr. BLONDIN. Thank you, Mr. Chairman. I think as you know, we work in conjunction with the Department of State in carrying out our national responsibilities in the international area. I do not mean to imply that there is a duplication of effort. Certainly there is not.

This is a team effort in which the Department of State in general terms carries out the negotiations dealing with the structure of regimes and the National Marine Fisheries Service provides the technical support for those negotiations as well as the primary responsibility for the support of international commissions managing fish and marine mammals. It is in this area in the support of international commissions that most of our programs are directed both from an informational standpoint, a research standpoint, as well as the support of the commission itself.

The CHAIRMAN. I was not thinking just of the commissions. Clearly, you support the State Department. You participate in the international fisheries commissions, foreign fishing activities. And you try to assist, you try to promote export expansion for the U.S. industry. Are you going to be able to do all of the things that you have been doing so far on the budget that has been asked?

Mr. BLONDIN. Yes, Mr. Chairman. I think again as Mr. Gordon has indicated earlier, we feel that with the array of priorities that we can carry out minimal responsibilities in these areas.

The CHAIRMAN. Can you carry out all of the things you are doing now to the same degree of effectiveness?

Mr. BLONDIN. We hope we can become more efficient in some areas and keep up that effectiveness. In the area of fish-and-chips I think we have broken new ground and gained experience over the past few years. And again, in conjunction with the efforts of the industry, we hope that we can use this as a multiplier effect to gain us access to foreign markets.

The CHAIRMAN. You are hoping for some support from industry, financial support; and representatives of the industry are going to testify a little later. They testified last week when we had the sea grant hearings that you are not going to be able to carry out what you now do if you do not get some help someplace else. Is that not right?

Mr. GORDON. If we do not get that help from industry, I think that is probably so. But from all indications at this point, we have been seeing signs that help from industry might be increasing.

The CHAIRMAN. Ted? Frank?

All right. You have a draft treaty that was recently concluded between the United States and Canada regarding the interception of U.S. salmon. Hopefully, this treaty will be ratified. How are you going to be able to fulfill our treaty responsibilities in the face of the proposed budget cuts?

Mr. GORDON. Mr. Chairman, we would submit a request to fund some of the scientific research if that treaty is finally fully ratified and implemented.

The CHAIRMAN. That is encouraging. If the treaty is ratified, you will ask for additional funds?

Mr. GORDON. That is our expectation, yes, sir.

The CHAIRMAN. Thank you. What Federal agencies besides the Fisheries Service are currently involved in aquaculture work on marine organisms, and are they prepared to fill the void created by the elimination of the aquaculture program of the National Marine Fisheries Service?

Mr. GORDON. Within the National Oceanic and Atmospheric Administration the sea grant is one of the principal contributors from our standpoint.

The CHAIRMAN. But we are going to zero that out. There is not going to be much help there.

Mr. GORDON. Agriculture has put some into aquaculture. The Department of the Interior has put some into aquaculture. And in speaking with the administrators from those two organizations, I have learned a few days ago that some of their budgets would be cut back in these as well.

The CHAIRMAN. How much is going to be cut back in the work involving salmon? Just give me a rough estimate.

Mr. GORDON. Between the Public Law 89-304 funds, which would be terminated, and other activity including the salmon work, it would approach 50 percent.

The CHAIRMAN. About half?

Mr. GORDON. Yes.

The CHAIRMAN. What about the whale observer position? That is going to go too.

Mr. GORDON. That is an observer stationed in Japan that observes the activities of the shore-based stations in Japan. Given the expectations of Japan meeting their obligations, I doubt that position would be needed.

The CHAIRMAN. They now have registered an objection. You may know something I do not know. What do you expect them to do?

Mr. GORDON. Currently, we have no reason to believe that they will not live with the IWC position.

The CHAIRMAN. But they filed an objection to it. First they get to keep whaling until 1986 anyway. Then they filed the objection. Do you think they are going to withdraw the objection?

Mr. GORDON. I cannot guarantee it, but I feel the Japanese will not abandon the IWC, and they may very well meet its mandate in that time frame.

The CHAIRMAN. So in the meantime we will have no observer between now and 1986 and you hope that they will withdraw the objection and observe the IWC rules?

Mr. GORDON. Yes, sir.

The CHAIRMAN. But no observer for those 2 years. What effect are the cuts going to have on the research data for recreational as opposed to commercial fishing? We are not going to have any new management work in that area, are we?

Mr. GORDON. No. Most of the work we are currently doing in terms of the recreational species is in the centers and carrying on biological activities. We do not segregate it out. Some laboratory reductions would impact on species of principal or very significant recreational interests. The principal area that reduction would take place is in the recreational fisheries survey rather than sample. We survey intensively the recreational community, and the cut would only leave enough funds available to alternate coasts. We would not be able to do that survey every year and would be relying in a sense on previous years' data in making allocation decisions and stock assessment decisions of that stock. So as I commented earlier, the accuracy of the data base would obviously diminish.

The CHAIRMAN. Mr. Gordon, it is kind of discouraging. It is not you who are discouraging. You are a good soldier. If you were to come up here and do anything other than support the administration's budget they would immediately dispense with you much as they are dispensing with all of your programs. Maybe you have just not gotten the message that you are soon to go also.

Let us be serious. Dr. Byrne was here last week. He had to do the same thing.

What we are witnessing is a wholesale attempt to dismantle the National Marine Fisheries Service and the sea grant colleges and all of the fisheries resource programs we have. I have information that OMB is going to put you at a $60 to $65 million figure next year. You cannot—you know it, I know it—you cannot carry on the programs that you have got with that budget, and you know it full well. There is only so far you can stretch the civil servants of this Government and there are only so many things they can do.

And if we want to cut, cut, cut, then let us face what we are doing. We are cutting out the very heart of the program. And you can talk all you want about efficiencies, there is a limit.

And I am not even asking you to answer this question. And I am not going to ask you any more. But these programs are not going to be picked up by the States. Very few of them are going to be picked up by private industry. They are simply going to disappear and then we are going to wonder why our fisheries deficit is going to be $3.5 and then $4 and then $4.5 billion, as on we go dismantling an organization that could help us with one of the very greatest national assets we have got.

Here we sit in our 200-mile zone with roughly 20 percent of the fishery resources of the world, and we are throwing it away. We are pennywise and poundfoolish for no justifiable reason.

I have no other questions.

Ted? Frank?

Mr. Gordon, thank you.

Mr. GORDON. Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF WILLIAM G. GORDON, NATIONAL MARINE FISHERIES SERVICE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Mr. Chairman and Members of the Committee, I appreciate the opportunity to appear before you today to discuss future plans for the living marine resource program of the National Oceanic and Atmospheric Administration. Since my last appearance before you the National Marine Fisheries Service has made substantial progress in meeting its responsibilities for conserving the Nation's living marine resources, managing them for long-term yield and helping the domestic fishing industry to reap optimal benefits from these priceless renewable resources.

For example, we have continued measures to ensure access by American fishermen to fishery resources on the high seas. We have upgraded stock assessments of commerical fish species. We have refined population estimates for protected species. We have gained data on habitat requirements and productivity potentials for various species heretofore insufficiently utilized. We have funded cooperative programs to encourage private-sector research and development. We have provided vital information to help American fishermen gain access to foreign markets and to domestic markets supplied by foreign products.

We are taking major steps to streamline our organization so that we can make even better use of our program resources. We are continuing the implementation of a new management system which permits us to monitor program performance, adjust priorities, plan wisely for the future, and protect the economic interests of citizens dependent upon fisheries for their livelihood.

I have recently reorganized NMFS headquarters to: (1) reduce overhead; (2) improve internal communication; (3) balance accountability and authority; (4) effectively track program progress; and (5) allocate a greater portion of our resources directly to products and services. I expect this restructuring over time will allow us to decentralize operations further and to delegate additional decisionmaking authority to field staff—a process we refer to as "regionalization". By making more decisions at the scene of the action, we can respond more rapidly to public needs.

We are also strengthening our partnership with other Federal agencies, the states, the commercial and recreational fishing industries, conservation groups and other constituents in seeking approaches to fishery program management that will accomplish the same goals with the expenditure of fewer Federal dollars.

The fiscal year 1984 budget request includes a total of $108.2 million to fund essential program activities. This includes $92.4 million for operations, research and facilities; $1.75 million for the Fishing Vessel Gear Damage Compensation Fund; $250 thousand for the Fishermen's Contingency Fund; $1.8 million for the Fishermen's Guaranty Fund; and $12 million for the Foreign Fishing Observer Fund. During 1984 we propose to accrue savings of 389 positions and $54 million by reducing programs which do not directly support NMFS management of living marine resources and by phasing out or terminating programs which should be returned to others. An increase of $5.1 million is being proposed for the Foreign Fishing Observer Fund to expand observer coverage. This program is financed totally through fees collected from foreign vessel owners operating within the U.S. FCZ. Disbursements from the fund can only be made to the extent and in amounts provided by appropriations acts. Legislation enacted at the end of the 97th Congress requires that in cases where NMFS is unable to provide its own observer, a vessel must obtain a private observer certified by the Department. We believe that essentially full coverage will be attained by early calendar year 1984.

No changes are being proposed in fiscal year 1984 for our three claims programs (Fishing Vessel and Gear Damage Compensation Fund, Fishermen's Contingency Fund, and Fishermen's Guaranty Fund), supported by user fees which can only be paid out when appropriated. We are not requesting funds for the Fisheries Loan Fund at this time, since the Administration believes improvements in the economy will render direct subsidy unnecessary. The Administration proposes that no commitments to guarantee fisheries loans be made in fiscal year 1984, as part of its overall credit reduction efforts, and that all Saltonstall-Kennedy (S-K) fund receipts be transferred to offset budget authority requirements of the Operations, Research and Facilities account. Legislative action will be proposed for the loan-guarantee limitation and the transfer of S-K funds.

Previously, the NMFS budget consisted of 26 separate line items describing program and function responsibilities in the OR&F appropriation alone. This has made it difficult to present our budget in a clear and concise manner. By contrast, the fiscal year 1984 budget comprises 10 line items tailored to reflect program responsibilities. It also complements the recent headquarters reorganization and the designation of Deputy Assistant Administrators for Operations and Science. The NMFS OR&F budget embraces three subactivities—information collection and analysis, conservation and management operations, and state and industry programs—reflecting the major functions.

The information collection and analysis subactivity develops information on the Nation's living marine resources and the users of those resources, including stock assessments of fisheries resources; population eetimates for protected species; habitat requirements of living marine resources in relation to their productivity potential; and data on the take and socio-economic significance of these resources.

The conservation and management operations subactivity supports the development of domestic and international management measures to ensure access to resources by United States fishermen; means for conserving populations of Federally-protected marine mammals and endangered species; and research in marine, coastal and wetland ecosystems critical for resource productivity. Both these activities include programs and funding that support compliance with Federal management regimes.

The state and industry programs subactivity includes state grants for fishery management and development within the territorial sea and grants to industry for research and development projects. The subactivity also includes efforts to improve access to foreign and domestic markets. Services and scientific information addressing safety, quality and public health impediments to full utilization of domestic fishery resources are funded in this activity, as is the administration of financial services.

I would now like to discuss some of the program changes proposed in the budget and the future direction of the major programs and activities of the Service.

Our information collection and analysis activities will focus on continuing essential fishery and protected species stock-assessment services and maintaining essential catch-data and industry economic information, with emphasis on resources that will be under managment and for which the Federal government has clear responsibility. This focus results in substantial dollar and manpower savings while continuing to support Federal management and industry development initiatives, and providing the critical information necessary for conserving and managing the resource. Timely scientific information on living marine resources, their habitat and their uses, are needed to support informed public and private-sector decisions on optimum use of these renewable resources. Currently, eighteen fishery management plans (FMPs) and seven preliminary management plans (PMPs) are in effect. We expect an additional eight FMPs may be implemented in fiscal year 1984.

We are proposing to reduce the acquisition of lower priority information. The 1984 budget would terminate our role in aquaculture development in anticipation of increasing private-sector participation in developing fish and shellfish culture systems. These types of activities are inappropriate for the Federal government to pursue in times of fiscal constraints. We are requesting $55.8 million in fiscal year 1984 to maintain needed information-acquisition and dissemination capability.

The 1984 budget also includes funding for chartered ships which will be used to conduct resource surveys and other research except when NOAA vessels are more cost effective. We expect substantial savings.

Our conservation and management programs will focus on implementing management regimes for fisheries with the highest priority needs. We are working with the Regional Fishery Management Councils to determine which fisheries are in the greatest need of regulation, whether the benefits of regulation outweigh the costs, and whether a Federal role or a Federal-state partnership is warranted. We are continuing to encourage the consolidation of present fishery management plans and the adoption of multi-year plans which remain in place until amended. This will reduce the number of regulations and generally increase efficiency.

We will continue to emphasize regulatory reform. We are not only examining many of our own regulations, but also those of other government agencies in an attempt to discover which are unnecessary and to revise those that are needlessly restrictive. We are also carefully considering requirements of other Federal legislation, such as the Regulatory Flexibility Act, the Paperwork Reduction Act and Executive Order No. 12291, which are meant to shield businesses and the Nation in general from unnecessary or burdensome Federal regulation.

Marine recreational fisheries and the industries dependent on them will continue to receive attention in agency programs because of their growing economic and ecological value. The sheer magnitude of the recreational catch is also significant. Our agency has adopted a new policy that will more fully intergrate marine recreational fisheries into NOAA's major programs and activities. We are currently working with the U.S. Travel and Tourism Administration of the Department of Commerce and the Sport Fishing Institute regarding development of recreational fishing information of interest to foreign tourists. This information, printed in five languages, would tell foreign fishermen about when and where different types of fish can be found and give licensing requirements and other necessary information.

As part of NOAA's "regionalization" strategy, our Regionl Directors will be playing a larger role in the review and implementation of Fishery Management Plans. Linked closely with this is closer cooperation with the states, especially those with interjurisdictional fishery stocks. However, the states will need to accept greater responsibility for support of fisheries under their jurisdiction. In fiscal year 1984, $18.4 million is requested to provide for the implementation of the highest priority domestic and international fishery management measures.

We will continue our basic management programs for the protection of marine mammals and endangered and threatened species for which NOAA has statutory responsibility. However, we hope to realize some savings by strengthening our partnership with the states. We anticipate that management responsibilities for some marine mammal species will be returned to the states; indeed, a recent amendment to the Marine Mammal Protection Act simplifies the mechanism for returning management authority to the states. We also expect to be able to improve our management effectiveness in protecting sea turtles in the Southeast because of our past efforts to develop and demonstrate a turtle excluder device. The excluder is expected to greatly reduce mortality of sea turtles caught incidentally in trawls by shrimpers. We are requesting $3.4 million for our protected species management efforts. Our total request for protected marine mammals and endangered species, with supporting protected species research, is $6.1 million.

We anticipate better integration of our habitat conservation activities with fishery management and development needs, in recognition of the need for balanced multiple use of all the Nation's marine resources. It should be noted that NOAA-approved CZM programs are now established in most coastal states. Since much of the critical fishery habitat is under state jurisdiction, the states will need to accept a greater responsibility for protecting the habitat and the productivity potential of the Nation's living marine resources. We will continue to provide essential research and support services necessary to influence multiple-use decisions affecting the marine environment. This includes specifying habitat concerns in fishery management plans which will guide states in their planning. We are continuing to simplify and streamline our participation in the joint permit-review process with other government agencies. This involves multiple-agency screening of permits to narrow the focus to the highest priority or precedent-setting issues. Our Northeast Regional Office has successfully implemented this joint-permitting process and we will asses its application to other regions as well.

Also in the Northeast Region, we are examining techniques to identify the most critical marine habitats and focus our resources in those areas. This prototype will be studied for application in other regions. In addition, we are currently developing a policy which will further clarify our role and objectives in habitat protection. We are requesting $3.3 million for our habitat conservation operations, which, along with supporting research directed toward defining habitat requirements, will provide a total of approximately $7.2 million for conserving living marine resource habitat.

In order to ensure foreign and domestic compliance with Federal management regimes for fishery resources and protected species, we will be continuing enforcement and surveillance efforts in cooperation with state and other Federal agencies. We are requesting approximately $8.3 million for enforcement and surveillance in fiscal year 1984.

We are proposing to reduce management operations where management is not critical, or where programs should become the responsibility of state, local or private entities. Major U.S. fisheries are already under approved management plans, and the work of the regional fishery management councils is shifting from the preparation of fishery management plans to monitoring their effectiveness. The monitoring and plan-adjustment process requires less staff support and fewer meetings that the initial preparation of FMPs. These functional adjustments concomitant with program maturity would permit a reduction in Federal support for fisheries management programs. Additional Federal savings can be realized through a greater assumption of responsibility by state governments to overcome the interjurisdictional fisheries management and resource-enhancement barriers. Mitchell Act requirements have been substantially met through Federal construction of salmon hatcheries and fish-passage facilities, and their operation and maintenance could be funded through user charges assessed to the beneficiaries of Columbia River water resource and hydroelectric power projects.

We are proposing to return responsibility for administration of social services and the operation of equipment and facilities on the Pribilof Islands to the local community. We have submited an fiscal year 1984 supplemental budget request for $20 million to set up a trust fund to facilitate the Pribilovians' transition to a self-supporting economy. Fur-seal harvesting in accordance with Federal quotas and initial processing will also be turned over to a native corporation. Legislative action will be proposed.

We are proposing to reduce our participation in the environmental impact and permit-review process, relying more on state and local entities to provide routine cognizance of development impact on marine resources. Our efforts will concentrate on developing guidance and precedent-setting issues.

Our fiscal year 1984 state and industry program reflects the proposed withdrawal of Federal support for programs which are more appropriately state or private sector responsibilities. It also refelcts a shift in the NMFS role in fisheries development and industry services from direct responsibility for program execution with industry participation to acting as a catalyst for private sector initiatives. We propose to maintain program expertise to support this catalytic function of encouraging private sector initiatives in foreign and domestic market expansion, technological innovation and maintenance of product quality and safety standards. We are requesting approximately $3.2 million to maintain a core fisheries-development program and financial services administration. As mentioned earlier, we are proposing to teminate Federal grants to the states for fisheries management and development activities and to industry for research and development projects.

We will continue to perform certain activities such as: international trade negotiations, export marketing and certain product quality and safety activities which support our voluntary seafood inspection program. The latter is a good example of a self-supporting program paid for by businesses that subscribe to the service. We intend to meet future demand for our inspection services primarily through use of cooperative inspection agreements with the states and the U.S. Department of Agriculture (USDA). These agreements provide for training and cross-licensing of state and USDA inspectors.

We will continue to seek innovative ways to work with the industry and others to carry out fishery programs. Project "Catch America," for example, represents a cooperative effort between the seafood industry and the government to serve the public and expand the industry. The program provided consumers and retailer information on numerous edible species and methods of preparing and handling them, and it strangthened supply networks that link the harvester, processor, distributor and retailer. We anticipate that after this year, the "Catch America" network will continue on its own without the need for substantial Federal funding.

We will also endeavor to integrate better our fishery management and development programs so that our efforts complement industry's efforts. For example, fishery managers and industry representatives, when reviewing assessment information, can identify opportunities for development. In this way, fishery management becomes a forum for identifying development opportunities as well as fulfilling the norms of regulation.

Our efforts to assist the fishing industry through support of joint ventures between the domestic industry and foreign countries will be continued as an interim measure pending development of full domestic utilization. These primarily involve "over-the-side" sales of non-traditional species by domestic harvesters to foreign processing vessels. To date, joint ventures have generally served our fishermen well. They have provided economic opportunities, transferred certain technologies, and provided the type of knowledge and incentives necessary to develop wholly domestic use of the resources in the FCZ in the near future. Of course, as domestic processors develop the capacity to handle the domestic catch, joint ventures of this type will phase out.

As part of a government-wide effort to raise the amount of private credit available to business, reductions are being proposed in credit programs. The fishing industry will benefit more from the Administration's effort to stabilize financial markets, cut interest rates, drop burdensome regulations and control inflation than from direct Federal assistance. Furthermore, we will continue to assist the fishing industry through our tax-deferral programs such as the Capital Construction Fund. We also propose that our claims programs be continued at the level of $3.8 million, which is required to meet the needs of the fishing industry.

In summary, there will be changes in the way we in the National Marine Fisheries Service do business. We are looking at all of our activities and responsibilities in a new light. Collectively, the Federal government, the states, the commercial and recreational fishing industries, conservation groups, the academic community and our other constituencies confront a significant challenge. Working together, I am confident that we can meet that challenge, but it will take a lot of creative thought and action on all of our parts. We in the Fisheries Service look forward to working with you, Mr. Chairman, and the other Members of this Committee and Congress in achieving our national fishery goals.

I would now like to discuss the authorizations expiring at the end of the current fiscal year: the Atlantic Tunas Convention Act, the National Aquaculture Act and Section 4 of the Fish and Wildlife Act.

The Department fully supports reauthorization of the fishery program under the Atlantic Tunas Convention Act, which implements the International Convention for the Conservation of Atlantic Tunas. This Treaty established the International Commission for the Conservation of Atlantic Tunas (ICCAT), the international organization with key responsibility for management and conservation of Atlantic tunas. Since its inception in 1969, ICCAT has effectively refined its role in obtaining and coordinating information for maintaining stocks of Atlantic tuna and tuna-like fish. In addition, ICCAT has participated in the joint formulation of regulatory proposals for submission to the Parties to the Convention.

The Commission has more than doubled its membership from the original seven countries which ratified the Convention in 1969. The 19 current members include the United States, Angola, Benin, Brazil, Canada, Cape Verde, Cuba, France, Gabon, Ghana, Ivory Coast, Japan, Korea, Morocco, Portugal, Senegal, South Africa, Spain and the Soviet Union. Observers from certain other countries and international organizations also regularly attend annual meetings.

In order to carry out its management responsibilities, the Commission organized the Standing Committee on Research and Statistics (SCRS), composed of scientists from member countries and responsible for coordinating data collection and stock-assessment programs. The Committee has acquired a significant data-base for tunas and tuna-like species in the Atlantic.

One of its most significant accomplishments is the establishment of a computerized data-processing bank at the Secretariat headquarters in Madrid. The results of an ambitious 4-year program to study Atlantic skipjack tuna stocks are being assembled for dissemination this year. Known as the International Skipjack Year Program, the project is designed to provide rapidly the scientific information necessary to develop a rational management plan for this species. The Skipjack is believed to be the most abundant of the commercial tunas in the Atlantic, and there is growing interest in expanding production. But we need more information to plan this expansion in an optimal manner.

The United States, which utilizes more than 50 percent of the total Atlantic skipjack tuna catch, strongly supported this program and participated in it through the resources of the NMFS Southwest and Southeast Fisheries Centers. Two research cruises were executed in 1980. One cruise tagged approximately 1,600 tuna and made a survey of the distribution and availability of skipjack tuna in the Caribbean Sea. The second surveyed bluefin tuna spawning grounds in the Gulf of Mexico and simultaneously collected information on spawning of skipjack tuna. NMFS scientists trained foreign scientists in tagging techniques and worked with them to analyze the large mass of data collected.

The United States has also been instrumental in developing the management and regulatory policy of the Commission, which has taken regulatory action with regard to three species of Atlantic tunas. In 1972 the Commission recommended a ban on the taking of yellowfin tunas weighting less than 3.2 kg in amounts greater than an incidental allowance per trip of 15 percent of all yellowfin on board a vessel. This regulation remains in effect. In 1979 the Commission passed a similar regulation to govern the taking of bigeye tuna, which was to expire in 1983, but has been extended to 1984.

In 1975, the Commission approved recommendations concerning Atlantic bluefin tuna calling for restricting the mininum size of bluefin landed to 6.4 kg, and limiting fishing mortality to recent levels. Member nations were left free to choose hcw to minimize mortality. More stringent controls on bluefin were imposed for 1982–83 following recommendations of the SCRS in 1981, based on an assessment of continuing decrease in abundance of the species in the Western Atlantic. As a result, ICCAT adopted a 2-year moratorium on western Atlantic bluefin tuna fishing. An annual catch of no more than 1,160 metric tons (mt) was permitted in 1982 to allow scientists to study the problem and the catch was divided among the United States (605 mt), Canada (250 mt) and Japan (305 mt). The Commission also recommended that no direct fishery should be conducted in bluefin spawning areas such as the Gulf of Mexico. With regard to eastern Atlantic bluefin tuna, the conservation measures adopted in 1975 remain in effect.

In 1982, the Commission reviewed the 2-year moratorium on bluefin tuna fishing in the western Atlantic, and, on the basis of SCRS advice, recommended an increase in the catch to 2,600 mt for scientific purposes. As a result the U.S. share rose to 1,387.3 mt, and the Canadian and Japanese shares rose to 573.3 mt and 699.4 mt, and the Canadian and Japanese shares rose to 573.3 mt and 699.4 mt, respectively. In addition to elevating the catch level, which may permit more accurate population assessment, the Commission recommended limiting the catch of bluefin smaller than 120 centimeters (cm) in length to no more than 15 percent in weight of the limit in the western Atlantic. The Commission did not change recommendations on directed fisheries in bluefin tuna spawning-areas such as the Gulf of Mexico, eastern Atlantic bluefin conservation measures, the minimum-size limit of 6.4 kg in weight for Atlantic bluefin in the entire Atlantic, or the recommendation to Contracting Parties to prohibit the transfer of fishing effort from the western Atlantic to the eastern Atlantic.

Developments culminating in the approval of regulatory measures for Atlantic bluefin tuna were initiated in large part by the United States, which raised the level of international concern over the status of the resource and, in 1974, proposed initial regulatory measures. The existence of these measures gives the United States the authority to manage bluefin resources off its own coast.

Under the Atlantic Tunas Convention Act of 1975, the Secretary of Commerce through the NMFS has promulgated regulations which establish fishing seasons, quotas, licensing and reporting requirements, enforcement procedures and gear restrictions. Moreover, the NMFS has continually conducted research and monitored stock levels of tuna in order to meet its ICCAT obligations. Because bluefin tuna represent a recreational opportunity for numerous U.S. fishermen, the NMFS has promulgated regulations which promote the broadest possible access.

In conclusion, I would like strongly to urge continued Congressional support for this international organization and for reauthorization of the fishery program under the Atlantic Tunas Convention Act.

I also appreciate the opportunity to appear before you to present the Administration's position on reauthorization of P.L. 96-362, the National Aquasculture Act of 1980, which is scheduled to expire on September 30, 1983. In support of the President's program to reduce Federal spending and return responsibility for innovation and investment-risk assessment to the private sector, as well as relying on the States and industry to assume greater responsibility for research of direct benefit to them, we oppose reauthorization of this Act.

Very briefly, the Act authorizes the Secretaries of Agriculture, Commerce and Interior to establish a National Aquaculture Development Plan to recommend action by the public and private sectors to achieve significant culturing on a commercial or other basis; provide advisory, educational, informational and technical assistance; encourage the implementation of aquacultural technology in the rehabilitation and enhancement of publicly-owned fish and shellfish stocks, and in the development of private commercial aquacultural enterprises; establish within the Office of Science and Technology Policy an interagency Joint Subcommittee on Aquaculture; and conduct studies of the capital requirements of the U.S. aquaculture industry and of Federal regulatory restrictions to aquaculture development. The Department of Commerce was authorized $7 million for fiscal year 1981, $10 million for fiscal year 1982 and $12 million for fiscal year 1983 to fulfill the provisions of the Act. The Department of Agriculture was authorized the same level, while the Department of the Interior was authorized lesser amounts.

Since the passage of the Act, working with other members of the Joint Subcommittee, we have completed the studies on capital requirements and regulatory restrictions, drafted a National Aquaculture Development Plan, and encouraged the implemention of aquaculture technology through contacts with industry and the public and by presenting our research findings to various user groups.

NMFS and its predecessor agencies, working with other Federal, State, academic and private groups, has developed a technological base from which both public and private constituencies can assess and exploit the aquaculture potential. They are, in fact, doing so. For example, the Texas Parks and Wildlife Department has built the world's largest saltwater fish hatchery in Corpus Christi. When in full production it will produce about 20 million redfish fingerlings for Texas bays. The first releases are anticipated by early summer.

The South Carolina Wildlife and Marine Resources Department will complete by the end of 1983 a new aquaculture research center. Consolidated Edison recently contracted with a private firm to operate, on the Hudson River, the largest striped-bass hatchery in the country, capable of producing about 600,000 fingerlings a year. The first releases will occur in late summer.

Two of the largest aquaculture feed producers in the United States have combined their efforts to develop an International Research Center. Working with internationally known consultants, the Center will coordinate basic research on new feeds and feeding strategies. The producers are setting up an aquaculture advisory board comprising members from industry, government and the academy.

In addition, many States have already developed or are in the process of developing aquaculture plans (Texas, California, Hawaii, New Jersey, Maine, Guam, etc.) Several aquaculture federations and associations are already fully operational, including the West Coast Aquaculture Federation, Maine Aquaculture Association, California Aquaculture Association, and the Washington State Aquaculture Association. So there is a great deal of activity at the State and industry levels. These groups are picking up the available technology and developing it. Industry recognizes the market potential for various cultured seafoods and in many cases already supports the type of research funded by the Federal government. The private entrepreneur is fully capable of bringing the new industry to fruition.

In view of these facts, and in support of the President's desire to cut unnecessary Federal spending, we oppose reauthorization.

I am also pleased to provide the Administration's views on reauthorization of the Fisheries Loan Fund.

The American Fisheries Promotion Act authorized transferring foreign fishing fees into a loan fund to provide capital for a domestic fisheries countercyclical assistance program. The first priority in disbursing funds was loans to borrowers under the Fisheries Obligation Guarantee Program. The second priority was loans to avoid default on unguaranteed debt which had financed vessel construction, reconstruction or reconditioning. The last priority was loans to cover vessel operating expenses in those years when the vessel owner suffered an operating loss. Thirty-four million dollars in foreign fishing fees had been deposited in the loan fund through December 31, 1982. Estimated foreign fishing-fee receipts through October 1, 1983 total another $27-30 million. We are now proceeding to loan the $10 million appropriated for fiscal year 1983.

Of the $10 million, $3.9 million is reserved for loans to borrowers under the Fisheries Obligation Guarantee Program; $5.8 million is reserved for loans to avoid default on unguaranteed debt which financed vessel construction, reconstruction or reconditioning. Nothing is reserved for the last loan purpose provided in the American fisheries Promotion Act, because loan demand under the second purpose is expected to far exceed $5.8 million.

A one-month open season for applications will be announced soon. All applications will be processed on a first-come/first-served basis until the entire $5.8 million is exhausted.

The rapid growth of Federal activities during the last decade has made the Federal government a heavy participant in the U.S. credit market, but the Administration is making a major effort to diminish this role. We are opposed to extension of the Fisheries Loan Fund because we believe that all industry will benefit more from a less preponderant Federal presence in capital markets.

The Administration recognizes, however, that the government has a legitimate interest in protecting its investment in outstanding loans guaranteed under the Fisheries Obligation Guarantee Program and in recovering loans already made under the Fisheries Loan Fund. We are interested in exploring alternative mechanisms to protect this investment.

This concludes my testimony. I would be pleased to respond to you questions.

[The following information was subsequently received for the record:]

Questions of Senator Hollings and the Answers Thereto

REGIONAL FISHERY MANAGEMENT COUNCILS

Question. The NOAA budget calls for a cut of almost 60 percent in the funding of the eight Regional Fishery Management Councils.

Wouldn't this level of funding force the Councils to meet so infrequently as to abandon their lead role in fishery management?

Considering that the Councils take considerable time now to develop approaches to ever-changing fisheries, won't this drastic cut stretch out the decision-making process all the more?

Answer. The major U.S. fisheries in the Fishery Conservation Zone in need of management are either already under management regimes, or fishery management plans are developed and will soon be approved to bring them under management. Council workloads will therefore be shifting from plan preparation to fishery monitoring to ensure plan objectives are being met. Fishery monitoring is also required to provide information for in-season management decisions by appropriate officials. Fishery monitoring requires a routine program effort as contrasted with the one-time special purpose information acquisition needed by the Councils for optimum yield issue resolution and plan development. This monitoring type of information is most suitable for, and can be developed through, NOAA's routine fishery program activities.

The reduction in funding associated with this shift from plan development to plan implementation will not cause the Councils to abandon their lead role in fisheries management. We also do not anticipate a stretch-out of the decision process. If anything, the process will be accelerated by the shift to framework plans, regionalization, and the shorter Council agendas now that most plans are in place or soon to be approved.

REGIONAL FISHERY MANAGEMENT COUNCILS

Question. In responding ot a question at the Commerce Committee hearing, you indicated that the proposed cut for the Regional Councils will hit some Councils harder than others. Please indicated how much funding is proposed in fiscal year 1984 for each of the eight Councils, as well as fiscal year 1984 base program levels for each of the Councils.

Answer. Regional Council funding for the previous year (fiscal year 1983):

[In thousands of dollars]

Council	Fiscal year 1983			
	Administration	Programmatic	State liaison	Total
New England	740	11	125	876
Mid Atlantic	517	47	150	714
South Atlantic	683		100	783
Caribbean	476	41	50	567
Gulf of Mexico	706	466	125	1,297
Pacific	674	564	125	1,363
Western Pacific	561	48	100	709
North Pacific	923	150	75	1,148
To be distributed [1]		[2] 368		[3] 368
Total	5,280	1,695	850	7,825

[1] As additional high priority requests are received from the Councils.

[2] Additional funds may be available when old grants are cosed out.

[3] The fiscal year 1984 planning base is $7.5KK. This total includes the planning base plus carryover from the previous year.

The allocation for fiscal year 1984 funding among Councils is not final. The proposed reduction may be distributed by an "across the board" allocation procedure. However, we are closely reviewing this question to ensure that all high priority fisheries continue to be managed and that essential fisheries needs are met when the fiscal year 1984 program is implemented. Since we are managing fewer fisheries than had originally been proposed by the Councils, the distribution of funding may need to be adjusted other than by the "across the board" approach.

PRODUCT QUALITY INSPECTION PROGRAM

Question. Some observers of the fishing industry have been heard to say that U.S. export opportunities and domestic marketing prospects would benefit dramatically from an industry-wide program of product quality inspection.

Do you agree with this observation? If so, do you believe the present NMFS voluntary inspection program could attract more users if its charges were partly subsidized? What are your views on mandatory Federal inspection of seafood?

Answer. We agree that product quality can play an important role in both domestic and export marketing. However, we do not believe that mandatory Federal inspection is the only or best way to achieve higher product quality. NMFS will continue to work with industry using voluntary, cooperative efforts. We believe that such an approach is a more effective way to achieve compliance with product quality standards and ultimately to increase domestic and export markets.

Since the inspection program benefits industry marketing efforts directly, we do not support partial subsidization of the inspection fees. The direct beneficiaries of this service, industry, should pay the full cost of this service.

MAJOR FISHERIES GOALS

Question. As was noted in testimony by Mr. Granger, the Commerce Department has three major goals in the fishery area. These goals are to increase the contribution of fisheries to the gross national product and to our export total.

What does the fiscal year 1984 budget proposal mean for the chances of achieving these goals?

Answer. NMFS contributes directly and indirectly to achieving seventeen (17) out of the twenty (20) major Department of Commerce goals. The seventeen include the three goals mentioned by Mr. Granger.

The fiscal year 1984 budget proposal retains the balance of programs needed to conserve, manage, and develop our fishery resources. We anticipate no slow down in the achievement of the DOC goals since our higher priority programs will continue to be funded. Mr. Granger, in part, was referring to the proposed elimination of Saltonstall-Kennedy fishery development grants which provide funding for regional fisheries development foundations. We believe that industry members as direct beneficiaries should fund these projects through some alternative funding sources such as membership fees, self-tax on landings, or contributions of industry research and development funds.

FIELD FACILITIES

Question. List all National Marine Fisheries Service field facilities (including research laboratories and other field facilities involved in conservation and management), and indicate for each the fiscal year 1984 base program levels, proposed fiscal year 1984 cuts, and proposed fiscal year 1984 funding levels. For the proposed fiscal year 1984 funding levels for each facility, please state how much is attributable overhead and how much would be available to carry out actual programs.

Answer. The attached list of proposed fiscal year 1984 reductions identifies direct programmatic funds for each facility. These funds are used to carry out actual programs.

NMFS FACILITIES FISCAL YEAR 1984 REDUCTIONS

	FTE	Amount (thousands)
Gloucester, Mass.:		
Habitat conservation	10	545
Fisheries development:		
Industry development	5	452
Product quality	20	956
Total	35	1,953
Woods Hole, Mass.:		
Resource information:		
Resource surveys:		
Fish dynamics	4	200
Marine ecosystems	0	100

NMFS FACILITIES FISCAL YEAR 1984 REDUCTIONS—Continued

	FTE	Amount (thousands)
Salmon research—Atlantic salmon	0	100
Fishery industry information—Socioeconomic and harvest statistics	0	111
Total	4	511
Naragansett, R.I.: Resource information—Plankton ecology	0	64
Milford, Conn.: Resource information—Acquaculture R&D	9	1,402
Sandy Hook, N.J.:		
Resource information—Habitat research	22	2,356
Information, analysis, and dissemination	2	103
Total	24	2,459
Washington, D.C.:		
Resource information:		
Habitat research	3	181
Aquaculture	17	693
Fisheries industry information	23	811
Fishery management programs—Councils	0	4,300
Habitat conservation	3	104
Grants to States	0	7,000
Fishery development:		
Industry development	21	1,158
Product quality	28	180
Total	95	14,427
Oxford, Md.: Resource information—Habitat research	16	759
Beaufort, N.C.:		
Resource information—Fish ecology	10	340
Analysis and dissemination—Ecosystems analysis	13	635
Total	23	975
Charleston, S.C.: Fisheries development—Product quality	20	1,393
St. Petersburg, Fla.:		
Habitat conservation	0	506
Fisheries development—Industry development	11	360
Total	11	866
Miami, Fla.:		
Resource information—Species biology—sea turtle and population assessment	0	530
Fishery industry information	0	1,724
Information analysis and dissemination	0	150
Total	0	2,404
Bay St. Louis, Miss.: Resource information—Fish ocean and survey technology	1	193
Stuttgart, Ark.: Resource information—Aquaculture	0	157
Pascagoula, Miss.: Resource information—Resource surveys	0	400
Galveston, Tex.:		
Resource information:		
Aquaculture	7	538
Fish ocean and survey technology	7	327
Total	14	865
La Jolla, Calif.: Fish industry information	0	318
Terminal Island, Calif.:		
Habitat conservation	0	30
Fisheries development—Industry development	4	154
Total	4	184

NMFS FACILITIES FISCAL YEAR 1984 REDUCTIONS—Continued

	FTE	Amount (thousands)
Tiburon, Calif.:		
Resource information:		
Marine recreational fish	13	633
Salmon treaty research	3	285
Information analysis dissemination	1	86
Total	17	1,004
Seattle, Wash.:		
Resource information:		
Resource surveys—Salmon interception and smolt survival	0	314
Species biology—Dall porpoise stock assessment	0	100
IWC observer	0	50
Habitat research	18	722
Aquaculture	8	575
Fishery oceanography	2	402
Fishery industry information	0	36
Fishery management programs	0	3,500
Habitat conservation	0	51
Fishery development:		
Industry development	2	68
Product quality/safety	21	881
Total	51	6,699
Manchester, Wash.: Resource information—Aquaculture	11	409
Newport, Oreg.: Resource information)—Aquaculture	0	300
Portland, Oreg.: Fishery management programs—Columbia River	0	6,954
Hammond, Oreg.: Resource information—Habitat research—Contaminant	2	87
Pasco, Wash.: Resource information—Salmon research—Ecological effectiveness, Columbia River dams	0	289
Auke Bay, Alaska:		
Resource information:		
Habitat Research—Alaskan salmon	1	98
Aquaculture	14	1,269
Salmon treaty research	0	1,450
Total	15	2,817
Juneau, Alaska:		
Habitat conservation	3	188
Enforcement and surveillance	1	80
Fishery development—Industry development	2	108
Total	6	376
Pribilof Islands, Alaska: Protected species—Pribilof	31	5,782
Summary:		
Resource information	168	15,323
Fishery industry information	23	3,000
Information analysis and dissemination	16	974
Fishery management programs	0	14,754
Protected species	31	5,782
Habitat conservation	16	1,424
Enforcement and surveillance	1	80
Grants to States	0	7,000
Fisheries development programs	134	5,710
Total	389	54,047

HABITAT RESEARCH PROGRAM

Question. It has been estimated that 95 percent of the important commercial and recreational species of fish in the Southeastern United States are estuarine dependent. Proper management of these fishery resources requires ongoing research on ecosystem interrelationships and on the natural and man-induced impacts on habitat such as pollution and housing or road construction. In spite of these circumstances, the Administration's fiscal year 1984 budget proposes termination of the habitat research program in the Southeast.

Please explain why this proposal was made.

Answer. We recognize and agree that estuaries play an important role in the various life stages of important commercial and recreational species of fish nationwide. However, we believe that the fiscal year 1984 budget proposal represents a proper balance of programs needed to conserve, manage, and develop our fishery resources. The highest priority habitat research will be continued by NMFS. In addition, we expect coastal states, industry, universities, and private organizations to fund those research programs on habitat issues that are of most benefit to the local or regional residents and industries.

HABITAT CONSERVATION PROGRAM

Question. A recent report by NMFS states that the habitat maintained in the Southeast through the Habitat Conservation Program is worth an estimated $33 million annually to the region's commercial and recreational fisheries.

In light of this return on investment, why does the Administration propose a 40 percent cut in the Habitat Conservation Program?

Answer. We believe that the fiscal year 1984 budget proposal represents a proper balance of programs needed to conserve, manage, and develop our fishery resources. The highest priority habitat program research will be continued. We also believe that it is more appropriate for the various coastal states with their coastal zone management plans to protect the near-shore and coastal habitats.

HABITAT RESEARCH PROGRAM

Question. What other State or Federal agencies are prepared to pick up the habitat research and management work that the Administration proposes to drop?

Answer. We expect the coastal states, universities, private groups, and industry, i.e. those that directly benefit from protecting habitat, to support the habitat research and management work previously funded by the Federal Government.

MARINE LAB CLOSURES

Question. Marine pollution events appear to be on the increase in the northeastern United States. Lobsters, oysters, and other shellfish are increasingly involved in sanitation and disease outbreaks and area closures.

In view of this, how do you justify extensive pollution research and monitoring reductions at Sandy Hook, New Jersey; Milford, Connecticut; and Oxford, Maryland?

Answer. We believe that the fiscal year 1984 budget proposal retains the best balance of programs needed to conserve, manage, and develop our fishery resources.

The programs proposed for termination at the various laboratories address regional or local problems that are more appropriately funded by regional, state, local or industry organizations. High priority research in these subject areas will continue.

LAB CLOSURES

Question. The fiscal year 1984 Administration budget calls for closure of the Pascagoula, Mississippi laboratory; the Charleston, South Carolina seafood laboratory; and the Gloucester, Massachusetts fishery development laboratory. These laboratories have contributed significantly to advances in seafood technology over the years.

Considering the Department of Commerce's interest in expanding fishery exports, what is the point in shutting down laboratories that can contribute to the U.S. reputation for high quality seafood production.

Answer. The Pascagoula and Charleston laboratories are not proposed for closure in the Administration's fiscal year 1984 budget. We recognize the valuable contributions in the past by all of the NMFS laboratories to fisheries management and development efforts. However, we believe that the fiscal year 1984 budget proposal represents the best balance of programs to conserve, manage and develop U.S. fishery resources. NMFS will continue its cooperative efforts with industry through the voluntary inspection program, education, and other efforts to enhance the quality of U.S. seafood production for both domestic and export marketing. We also believe that much of the seafood technology work at the technology labs is more approprate for the industry to fund.

HABITAT RESEARCH PROGRAM

Question. In your prepared statement before the House Committee on Merchant Marine and Fisheries Subcommittee on Fisheries and Wildlife Conservation and the Environment, you stated the following: "We are requesting $3.3 million for our habitat conservation program operations, which, along with the supporting research directed toward defining habitat requirements, will provide for a total program of approximately $7.6 million for conserving living marine resource habitat." (page 10, Paragraph 1)

The same sentence appears in your written statement to this Committee on March 10, but the total program sum was changed to $7.2 million (page 9, Paragph 2).

Please explain why the total program was reduced by $400,000 between the times of the two hearings. Also, please list the proposed fiscal year 1984 funding for habitat research at the sub-line item level, showing title, location, and allocation.

Answer. The apparent discrepancy in numbers is not a program reduction but rather reflects different treatment of program overhead.

The NMFS program for conserving living marine resource habitat consists of two components: the Fishery Habitat Ecology sub-line item under Resource Information (page NOAA-79) for $3.9 million (direct program) and the Habitat Conservation line-item (page NOAA-80) for $3.3 million (direct and indirect program). The total of these two numbers, as printed in the Congressional budget document, is the $7.2 million reflected in the March 10 written statement. The sub-line item portion does not include estimated indirect program costs and is not directly comparable to the line-item portion which does include these costs. For the House Merchant Marine and Fisheries Subcommittee statement, approximately 10 percent of the sub-line item total ($400,000 = 10 percent of $3.92 million) was added for indirect costs (as a best estimate) which made the program total $7.6 million (($3.9KK + $.4KK) + $3.3KK = $7.67KK).

The budget submission describes the sub-line item for Fishery Habitat Ecology (NOAA-79) but there are no sub-line item breakouts for the Habitat Conservation line item.

COMMERCIAL FISHERIES RESEARCH AND DEVELOPMENT GRANTS

Question. The matching grants to states under the Commercial Fisheries Research and Development Act are the main sources of funding for the research that underlies interstate fisheries.

In light of this and the dynamic marine environment, isn't it likely that multi-state fisheries will be managed less efficiently without current data?

Answer. We are opposed to the continuation of both the Commercial Fisheries Research and Development, and the Andromous Fish Grant Programs.

NMFS shares with the states the same overall concern for sound management of fisheries which occur in state and Federal waters. Although the federal government has the primary responsibility for management of Fishery Conservation Zone (FCZ) resources, these same stocks are frequently also caught in states' waters and in both areas by states' residents. States, therefore, have important interest in FCZ fisheries. The federal government has no direct responsibility under the Magnuson Act for stocks that migrate through the territorial waters of several states. It should be the states' responsibility for funding state-based research and management activities such as the projects currently conducted with categorical grants under the Commercial Fisheries R&D Program.

Date required for management of FCZ resources will come from NMFS' in-house programs. Data for multi-state fisheries within the territorial sea will have to be funded through state efforts.

RECREATIONAL FISH SURVEY

Question. It is estimated that recreational fishermen collectively catch a greater share of many fisheries than their commercial counterparts. The recreational fishing survey of NMFS offers promise for quantifying the catch and number of recreational fishermen. The survey should provide a baseline to permit better informed management decisions on fisheries of special recreational interest.

In light of this, doesn't the cut of $633,000 for the recfish survey undermine effetive management? What would be the projected completion date of the survey under the Administration's proposed funding plan?

Answer. We agree that recreational fishing plays an important role in the lives of many U.S. citizens, and in local and regional economies. We also agree that there is an on-going need for current data for both the recreational and commercial fisheries to support the management decision-making process. Such data collection, however, must occur within the overall constraints of the budget and program priorities. We believe that the proposed fiscal year 1984 budget represents the best balance of programs needed to conserve, manage, and develop our fishery resources. The specific reduction of $633,000 in the marine recreational fisheries sub-line item (page NOAA-77) does not include the recreational fisheries survey that the question references. Instead it refers to research at Tiburon, California. The proposed reduction of $500,000 for the recreational fisheries survey is part of the proposed reduction of $3,000,000 in Fisheries Industry Information (page NOAA-78). The survey would still continue, but would be conducted in states rather than synoptically.

The CHAIRMAN. Next we will take Mr. Cookingham from the New Jersey Division of Fish, Game and Wildlife.

Mr. Cookingham, good to have you with us. Go right ahead.

STATEMENT OF RUSSELL COOKINGHAM, DIRECTOR, NEW JERSEY DIVISION OF FISH, GAME AND WILDLIFE, ON BEHALF OF INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES AND REGIONAL MARINE FISHERY COMMISSIONS

Mr. COOKINGHAM. Mr. Chairman, I am Russell A. Cookingham, director of the New Jersey Division of Fish, Game and Wildlife, which is a division within the Department of Environmental Protection. I will be speaking on behalf of the National Association of Fish and Wildlife Agencies.

The association is an organization committed to balance fisheries resources conservation, management and development. We have a manifest interest in the programs being operated under NMFS jurisdiction and direction.

The CHAIRMAN. Let me, if I may for a moment, Mr. Cookingham, interrupt and say to the witnesses that all of your statements will be in the record in total. Mr. Gordon was able to abbreviate his rather significantly so we could ask questions, and I would appreciate it if the other witnesses could do the same, because I know we have questions to ask.

Go right ahead, sir.

Mr. COOKINGHAM. I plan to summarize most of my statement, sir. I would note that the international does represent all 50 States. We are very concerned with the outcome of the National Marine Fisheries Service budget. We also—I am speaking on behalf of the three commissions, the Atlantic, Gulf, and Pacific, which makes up 24 States.

I have distributed my detailed statement to you, which I assume some of you have seen and read.

We in the international find it totally unacceptable that a one-third cut in funding of the National Marine Fisheries Service should be proposed in the Department of Commerce budget for 1984, particularly when other resource agencies are currently level funding or experiencing only minor decreases. This shows either an increase or a comparatively normal reductions in funds for operating purposes in the other agencies.

As the association noted 1 year ago, budget reductions of the magnitude inflicted upon the National Marine Fisheries Service approach, if they do not surpass, the point where the effectiveness of the agency has been so gutted that survival of operating as a Federal entity must now be questioned.

I would like to comment on several points that I think are important, and we as State agencies would like to emphasize. Reduction in research funds, 30 percent or more, this includes the sea surveys which have been already discussed here; the stock assessment work; the recreational statistics and other information collected for analysis.

The sea survey work meaning laying up the NMSF fleet is very foolish. We feel that these are ongoing surveys that have been proceeding for many years. There is no way you can contract this type of work out. The value of the work, and the credibility of the data will be very questionable, in my opinion.

The loss of laboratory facilities is of great concern to us, including Oxford, Md., Galveston, Tex., Mississippi, California, and Gloucester, Mass., and our tech lab. Also, we understand that there will be major cuts in some of the labs that will not be closed, such as Sandy Hook in our State of New Jersey, which is providing much of the needed research and information to assess the impact of pollutants in our New York bight area.

Reduction of the Fisheries Council budget by 57 percent is proposed. This we feel will cripple the congressional mandate to draft management plans in accordance with the FCMA of 1976. The Mid-Atlantic Council, where I have served for 7 years, we have developed plans regarding squid, butterfish, mackrel, and sea clams. These are ongoing. We feel we have made real progress with these plans. We are working now on plans for bluefish, fluke, scup, and tilefish. Without the funding to continue this work, we feel there is going to be a major setback in our ability to develop needed plans and this may have severe negative impact on the industry.

This year, 1983, by actions of the Mid-Atlantic Council, we feel that we can generate an additional $68 million in revenue to commercial fishermen. If you expand this amount based on increased processing capabilities, this figure will can probably double to almost $150 million.

To briefly summarize, this year through joint ventures and increased domestic processing we will be fishing for about 29,000 metric tons of squid, which will bring in about $26 million. About 10,400 metric tons of lologo squid at a value of about $17.5 million, 11,000 metric tons of butterfish at about $21 million, and 10,000 metric tons of surfclams bringing in $5.2 million.

This 10,000 metric tons of surfclam is in addition to what the original quota had been. The reason we could increase this quota was that based on our research findings which indicated the resource was recovering. We recommend the restoration of the NMFS research funds and the council funds to at least last year's level.

The second major item I would like to briefly discuss is the impact on our State-Federal partnerships through the complete elimination of the two major matching programs, the Commercial

Fisheries Research and Management Act, Public Law 88-309, and the Anadromous Fish Conservation Act Public Law 89–304.

Contrary to the concept that these are State responsibilities, these funds are used primarily for interstate programs, wherein the States working cooperatively with the Federal agency obtain the information needed to carry out joint management responsibilities.

For example, just to consider the data collection area. On the east coast there are eight States involved in the Public Law 88–309 program, collecting statistics not only for managing their domestic fisheries within the State waters but also through interstate programs. Also, they are providing information to the regional councils.

On the national level there are 12 States involved in the data collecting process. And these programs on the east coast are valued at $475,000 of 309 money, nationally the figure is $850,000.

I might reemphasize the fact that all these programs are being reimbursed in part. The States are sharing in the costs at the present time by one-quarter to one-half. In the area of the Anadromous Fisheries Act, almost every State on the east coast is carrying out programs on shad, striped bass, river herring, et cetera.

On the east coast we have 11 States involved in the striped bass research and development program. As you know, the striped bass are in dire need of help for the resource is collapsing. There has been a tremendous effort cooperatively by the Federal agency working with the States to come up with the information to determine if we can reverse this trend.

There was a total last year of $1.2 million committed through this State-Federal cooperative effort. As we see it this program would be entirely eliminated if the administration's proposed budget change were enacted.

Even in the area of shellfish, which a number of States, like New Jersey, have spent Public Law 88–309 money on, much of this work is complementary to other States. For example, is our MSX work in Delaware Bay, this work is assisting other States in their shellfish disease work.

I might also say that a number of States, particularly on the east coast where we have small States who have a very difficult time in obtaining appropriations due to existing budget constraints, may be pretty well eliminated from the entire marine research area under the proposed Federal reductions.

The CHAIRMAN. Let me ask you a question, because you are speaking for the 50-plus State agencies most directly affected. Do you know any of them who have said they are going to pick up these programs if the Federal Government drops them?

Mr. COOKINGHAM. I know of none.

The CHAIRMAN. I do not either. Excuse me for interrupting.

Mr. COOKINGHAM. I am sure that obtaining State appropriations without Federal matching funds for these programs will be more difficult. That is one of the carrots you have in getting your legislature to aprove State funding for matching Federal funds. The Federal Government will match 50 to 75 percent of these programs. Without this opportunity, under this budget, I think a number of States are going to have a difficult time obtaining any funds.

The CHAIRMAN. Let me ask you another question. Do you know any marine fisheries which are limited to one State, that do not cross any State boundaries. Federal boundaries, or international boundaries?

Mr. COOKINGHAM. Only estaurene type fish, like white perch, species of that nature. Also your shellfish population would be strictly in-State. But other than that, I can think of none.

The CHAIRMAN. So a further problem in terms of the States picking up the cost of this is the States would argue among themselves as to which State should pick up what percentage of the cost depending on how many fish happen to be on my border as opposed to your border?

Mr. COOKINGHAM. That has always been the case in the past. I might add, Senator, that in the last 10 years there has been a tremendous improvement in the cooperative work between the States due to the relationship of the National Marine Fisheries Service working not only in these grant programs but in what they call Federal-State initiatives wherein they have provided the initiative and leadership and the funds to allow for interstate management programs to go forward. This has impacted on our striped bass, menhaden and fluke. The start of our sea clam work came from this type of effort, also lobster management. We have a tremendous number of examples where this Federal-State interaction has been successful.

Naturally, we are very concerned whether State and Federal cooperation will continue or not, and I would just like to mention a few other things that the international is particularly concerned about, and I know you brought it up already, Senator, such as the mitigation obligation for damages to fishery resources by hydropower and other waterway development.

An example would be the Columbia River hatchery system. Also, salmon studies between the United States and Canada based on a good-faith commitment by both governments. This is of particular concern to the fisheries administrators of the Western States, as you well know. We recommend here that these funds be restored.

I would like to mention the habitat protection program, which the National Marine Fisheries Service spelled out last year to be one of their priority programs. A policy statement was issued in 1982. We understand there is a total of $5.4 million being reduced from that program. The research component of this habitat protection program is to be reduced by 69 percent and the environmental impact analysis component by about 58 percent.

Habitat protection—and I can speak for myself in New Jersey—without this program, we will really regress, because with our tremendous problem of pollutants in New York Bight off New Jersey, this program is so vitally essential.

Enforcement—I would just like to throw this out—as you know, the enforcement capabilities of National Marine Fisheries Service have been inadequate. This has been one of the biggest stumbling blocks with our council activities where we develop management plans and have been unable to carry out the enforcement responsibilities.

We note that this program is level funded with reduction, one person. We feel if NMFS cannot expand their own enforcement efforts that they should expand their contractual arrangements with States so that the States can do the job with assistance from the Federal Government.

Aquaculture. We feel that this work should parallel work on the aquaculture experimental stations. The present request would terminate the program, as you well know, and we recommend a continuing program at least at last year's level.

The international association objects to the total $49 million reduction proposed in the 1984 budget request of the National Marine Fisheries Service. We also object to the observer program being presented as a line budget item, wherein the funds are derived entirely from assessment of foreign vessels. This is included as part of the National Marine Fisheries Service budget and we think this is wrong. This is a separate item and should be treated separately.

In conclusion, Mr. Chairman, the opportunities for expansion of the U.S. fishing effort by priority access in the 200-mile law to these rich fishery resources are almost unlimited. The United States still imports one-half of our fish needed for food. Now as never before, we have the opportunity to rebuild the U.S. capability to harvest these fishes. We need a cooperative U.S. and State effort to continue and work together to enhance this opportunity.

Your courtesy in receiving these views is most appreciated. It is a pleasure that I have been able to appear before you and present the thoughts of the International Association of Fish and Wildlife Agencies.

The CHAIRMAN. Mr. Cookingham, you bring an aspect to this testimony that no one else in this country could. I appreciate it and I apologize for interrupting you with my questions. I have no other questions.

Ted?

Senator STEVENS. I have no questions.

The CHAIRMAN. Frank?

Senator LAUTENBERG. If I might, Mr. Chairman.

First, Mr. Cookingham, I am pleased that you were selected among your peers to represent the Association of Fish and Wildlife Organizations. That indicates the view that your peers have for your skills and capability, and we are pleased to have you from New Jersey representing the association.

I like some of the language you used in your testimony. There are stronger words than that in here, and I agree with you completely. And I am pleased to see the attitude of my colleagues on this committee, the chairman and Senator Stevens. Even though New Jersey is a small State, the fishing industry is a very important one to us.

I think it is fair to say also that whatever research is conducted in our area is of vital interest to our country and to the fishing world generally.

The cuts we are looking at are going to have a terrible impact. You said that in your testimony. I asked a question before and I would like to repeat that question regarding the effects of the cuts. Are they going to be discernible in short term, or are they perhaps not going to be felt dramatically for a while? What is your view on that?

Mr. COOKINGHAM. First, I am pleased to see that you are on this committee.

Senator LAUTENBERG. We will see how I do.

Mr. COOKINGHAM. Welcome aboard.

Senator LAUTENBERG. Thank you.

Mr. COOKINGHAM. I think it is going to have an immediate impact on New Jersey, because we are a small State, as you know. Our total marine fish, shellfish budget is right around $1 million. About a quarter of that comes from Federal grant programs. So it is going to have 25 percent impact right off the top on our immediate program.

In addition, we are under a 0.5 percent reduction mandate from the Governor, like all other departments, and whether this will be accelerated next year nobody knows at this point in time. Also, it will be more difficult to obtain State appointed matching funds which in the past were made available to match these Federal grant programs.

We see both an immediate impact as well as the long term impact being severe. I also mentioned the concern about Sandy Hook, and their research efforts. We are one of the six States in the Mid-Atlantic Council and in the past all committess have been extremely active in that activity. We have put a lot of our time and effort into it, in preparation of ongoing management plans.

So we cannot just talk about New Jersey alone without talking about our total impact on the mid-Atlantic area. We work very closely together.

Senator LAUTENBERG. I think that Senator Packwood hit it on the head when he asked you before about whether these were not more national problems than State problems. I ask you the question whether any research performed by the State affected only its own interests.

Mr. COOKINGHAM. Most of our research ongoing in New Jersey is interstate in nature, whether it be striped bass, weakfish, lobster or whatever. Almost every project, with the exception of our shellfish projects is in an interstate mode.

Senator LAUTENBERG. Fishing is a major industry for us, apart from the commercial end. New Jersey is a recreational State. We have a large part of our revenue derived from tourism, and fishing is a part of that recreational activity.

We are plagued by our pollution problems and other environmental problems. Now, our proximity to industrial areas and ocean dumping and its impact create a problem for our fisheries. We are concerned, of course, with the offshore energy development as well. In fact, we went to court on selected offshore leases because they threatened fish areas.

What will these program reductions mean to the Government's effort to study and analyze the environmental impact in the ocean of that offshore development?

Mr. COOKINGHAM. One of our more important programs in Public Law 88-309 has been an inventory of our fishing grounds off New Jersey, for this very reason. As the oil industry expands and develops, we want to have more knowledge, better information on what impacts these developments will have on our fisheries.

That information was the basis for our going to court, by the Governor to object to certain lease sales. There were heads of canyons that were in critical areas for our fisheries. Public Law 88-309 paid off in providing information that was vitally needed to carry out the law suit.

Study of contaminants is another major issue. Any setback in resources by either the Feds or our ongoing States work on PCB's will be sorely missed, because these are very critical areas of needed research that may have a tremendous economic impact on both recreational fishing as well as commercial fishing.

Senator LAUTENBERG. You just have to travel in the south of our State to see how seriously people regard these programs. So much of our industry down there is marine oriented. The cutbacks in these areas would be devastating for us.

It is of great interest, I think, to our Nation, Mr. Chairman, that we continue to examine the impact of pollution in our waters. We are perhaps destroying one of our most valuable assets, or resources.

Thank you very much.

[The statement follows:]

STATEMENT OF RUSSELL A. COOKINGHAM, DIRECTOR, NEW JERSEY DIVISION OF FISH, GAME AND WILDLIFE, FOR INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES

Mr. Chairman, The International Association of Fish and Wildlife Agencies welcomes this opportunity to have a part in your Committee's examination of the National Marine Fisheries Service Budget for Fiscal 1984.

As an organization committed to balanced fisheries resource conservation, management and development, we have a manifest interest in the programs being operated under NMFS jurisdiction and direction, particularly those with a high potential for effective state-federal coordination and cooperation and with special significance for our members in the 50 state fish and wildlife agencies.

The following statement reflects the organization's very serious concern over the potential impact of the NMFS budget on those objectives, and recommendations developed by an IAFWA Ad Hoc Federal Budget Committee for adjusting the spending proposals to address our priority needs.

It also expresses the collective views of the Atlantic States, Gulf States and Pacific Marine Fisheries Commissions and their 24 coastal state members as confirmed by participation of the Executive Directors of all three commissions in the Ad Hoc Committee's discussions and its conclusions.

The statement is presented for your consideration in that frame of reference, even though submitted in our name.

You will note that it addresses some NOAA programs outside the immediate realm of the NMFS budget but it was our judgement that the issues concerned are interlocked to the degree that comment on both is essential to full perception and understanding of the shared views and interests of our organization and those of the three commissions.

The International Association of Fish and Wildlife Agencies finds it incredible and totally unacceptable that a nearly one-third cut in funding for the National Marine Fisheries Service should be proposed in the Department of Commerce budget for fiscal year 1984, particularly when Department of Interior budgets for the Fish and Wildlife Service, Bureau of Land Management and National Park Service show either increases or comparatively normal reductions in funds for operating purposes. As the Association noted a year ago, budget reductions of the magnitude inflicted upon NMFS approach, if they do not pass, the point where the effectiveness of the agency has been so gutted that its survival as an operating federal entity must be questioned.

The Association is particularly incensed at the focus of these budget reductions upon the role of the National Marine Fisheries Service in research, fish stock assessment, data collection and analysis, and other scientific functions essential to conservation and effective management of our marine fishery resources. The Association finds this abandonment of federal responsibility for developing the information base for resource management decisions particularly incomprehensible in light of recent Congressional actions to give the U.S. Fishing industry priority access to the rich fishery resources of the 3-200 mile Fishery Conservation Zone, and thereby provide opportunity to rebuild the U.S. capability to harvest those resources for the economic benefit of the nation and for the strategic benefits which attend the production of important food resources. The United States still imports more than half the fish needed for food, and at a staggering cost in negative foreign trade balance. How can this nation afford to eviscerate the research capabilities of its national and state agencies which are responsible for developing the information base for conservation and wise use of its fishery resources?

To illustrate, the proposed budget would lay-up the NOAA fleet, which provides the ocean platforms for resource assessments, oceanographic investigations, baseline ecological studies, and other scientific work absolutely essential to effective planning for long-term use and development of our fisheries. While the Association accepts the view that some of the work previously carried out by the NOAA fleet can be contracted to other vessels, not all studies can be addressed on such an ad hoc basis. Year by year replication of surveys requires standardization of vessel operations and gear for which in-house control of vessel operation is essential.

Even more devastating, the 1984 budget proposes a 30 percent overall cut in funding for information collection and analysis. Within that general category, fish resource information derived from sea survey work would be cut 38 percent, thus further attenuating the flow of data required by the Regional Fishery Management Councils to develop and implement Fishery Management Plans in accordance with the Congressional mandate under the Fishery Conservation and Management Act of 1976. NMFS is also faced with a 30 percent cut ($1.5 million) in the Marine Recreational Fisheries Statistics Program, currently the only effective mechanism of assessing the impact of marine recreational fishing upon fish stocks. Management of stocks fished by both commercial and recreational fishermen depends upon filling this heretofore serious gap in the data base.

Apparently as a component of this gutting of NMFS capability for research, monitoring, and data assessment, the agency faces significant reductions in force and in funding for all of its research centers, and total closure of a number of satellite laboratories which have contributed extensively to our information base for management of fisheries. Targeted for total closure are stations at Oxford, Maryland, where major U.S. capabilities on fish and shellfish disease control are located, Galveston, Texas, site of shrimp and other shellfish researches, Bay St. Louis, Mississippi, concerned with improvements in fishery technology, Tiburon, California, where much of West Coast seashore fishery research takes place, and the Technical Laboratory at Gloucester, Massachusetts. These proposed closures can only further inhibit the developing ability of this nation to protect and wisely use the living resources of the sea for the benefit of our nation's food supply and economic status. How can this Administration call for increases in national productivity while at the same time it cuts away the research resources required to foster that productivity?

In a parallel abandonment of federal responsibility, the National Marine Fisheries Service 1984 budget is designed to destroy the State-Federal partnership which has been so effective in the past several decades in developing the information base on fisheries resources which at some time in their life cycles inhabit the territorial seas, bays, estuaries and rivers of our coastal States. The budget again proposes total close-out of the two Congressionally-established State-Federal programs which have provided a major share of the data required for conservation and management of these resources under the Commercial Fisheries Research and Development Act and the Anadromous Fish Conservation Act. These programs are jointly funded by Federal and State governments. Abrogation of the Federal obligation will cost us not only the data base required for regional management of coastal and anadromous species, but also the coopertive spirit and drive which has enabled our States and the Federal government to work effectively over recent years on shared research and management of shared fisheries. These are not State programs, as the Administration chooses to characterize them—they are State-Federal cooperative programs for conservation and management of regionally shared fishery resources.

The 1984 NMFS budget also proposes a crippling 57 percent reduction in funding for operation of the Regional Fishery Management Councils—the regional bodies charged by Congress with development and implementation of Fishery Management Plans for management of fisheries in the 3-to-200-mile Fishery Conservation Zone. With such a reduction in funds, those Councils would be reduced to little more than caretaker entities, lacking resources for development or improving management plans. Again this is totally inconsistent with the need to achieve long-term productive management of the rich food resources made accessible to the U.S. fishing industry by the Fishery Conservation and Management Act of 1976. The Administration appears willing to forego the opportunity to gather for U.S. benefits the wealth and strategic advantages of utilization of living marine resources now largely going by default to foreign interests.

To sum up concerns and recommendations with respect to National Marine Fisheries Service conservation and management of marine fisheries, the International Association of Fish and Wildlife Agencies (IAFWA) rejects as totally unacceptable the ⅓ cut in funding proposed by the Administration for fiscal year 1983, and urges that the $49 million reduction from base proposed by the Administration be restored. It is unconscionable that such a massive reduction be forced upon NFMS, particularly in view of the relativley sustained funding proposed for Department of Interior natural resources agencies.

As top priorities, the IAFWA urges restoration of at minimum the $7 million deleted for the Commercial Fisheries Research and Development Act and the Anadromous Fisheries Conservation Act. The Federal Government must not abrogate its responsibility to continue to participate with the states in financial support of these regionally essential cooperative research development and fishery monitoring programs. The IAFWA also accords high priority to restoration of the $4.3 million cut proposed for the Regional Councils and of the $15 million proposed reduction in fishery resource information programs. The IAFWA urges also a thorough reassessment of plans to take the NOAA fleet out of service, with restoration of sufficient funds to assure that resource surveys requiring long-term continuity and standardization of methods can be properly sustained.

Closely related to these direct management responsibilities are the habitat protection and general enforcement mission and capabilities of NMFS. Since maintenance of productive habitats is absolutely essential to maintenance of species dependent on those habitats, how can the agency in good conscience reduce its already limited funding for habitat conservation by more than 50 percent? The Association urges restoration of the $4.54 million proposed reduction, particularly in view of the recently adopted NMFS policy document which proposes expanded initiatives and responsibilities in this area for the agency.

The IAFWA also finds inconsistent with established federal responsibilities the apparent intent of the Administration to abrogate obligations for mitigation of past damages to fishery resources by hydropower and other waterway developments, and the incomprehensible proposal for noncompliance with pending foreign treaty obligations. Specifically the Association objects strongly to deletion of support for Columbia River hatcheries, which are in mitigation of federal dam construction and water diversion from that important river system, and to the expressed intent to curtail river-of-origin studies of salmon of concern to U.S.-Canadian allocation decisions. The pending U.S.-Canadian treaty for cooperative management of shared salmon resources is dependent upon good-faith commitments by both governments to continue essential research and monitoring of these fisheries. How can the U.S. in good conscience proceed with treaty arrangements while at the same time its principal research arm (NMFS) is being forced to curtail the essential researches which are the underpinning for that treaty? The IAFWA insists that those researches be continued, and strongly recommends also that funds be restored in the amount of $2.1 million for the programs relating to Atlantic and Columbia River salmon.

The Association also objects to proposed curtailments of appropriate governmental assistance to the fishing industry. The Association will support continued careful review of the appropriate role of government with respect to the private sector, but it cannot believe that the already relatively small role of NMFS in fisheries development should be reduced from the $8.3 million level in 1983 to a proposed $2.75 million in 1984, a 69 percent reduction in governmental effort.

Similarly the IAFWA questions the rationale of a total abondonment of NMFS attention to aquaculture. Government should accept responsibilities for research and innovation in farming our seas analogous to that historically given to farming our lands. Experimental work on aquaculture problems should parallel that of agricultural experiment stations. It requires sustained efforts over a period of years in order to produce results. These studies provide best available opportunities to understand the fundamental biology and physiology of selected organisms which cannot be properly studied under natural wild conditions. The IAFWA, therefore, seriously questions the $5.3 million reduction in funds which, if approved, would terminate the NMFS aquaculture program.

The IAFWA continues to object to inclusion in the NMFS budget of funds to be used for the observer program for foreign fishing operations. These funds are not properly a part of the agency budget. They are derived entirely from assessments upon foreign vessels fishing under permit in the FCZ. Congressional action established a special fund for those funds with the intent that they would be used directly and exclusively to fund our observer program. Funds derived from non-federal sources and for this dedicated purpose should not be incorporated into the general NMFS budget either for purposes of budget planning and allocation or for budget review. This problem has plagued the agency for years, and should be rectified once and for all.

Your courtesy in receiving these views is most appreciated. Hopefully they will contribute to a full discussion of the issues and problems concerned and to the search for realistic and appropriate solutions. Our organization will look forward to the prospect of working with your committee in any appropriate way to that objective.

The CHAIRMAN. Thank you, Frank.

Ted, any questions?

[No response.]

The CHAIRMAN. Mr. Cookingham, thank you very much for coming.

Next we will hear from Richard Gutting, who today is representing the National Fisheries Institute. He used to be an employee of the National Marine Fisheries Service and I think knows that Agency very well.

STATEMENT OF RICHARD E. GUTTING, JR., VICE PRESIDENT—GOVERNMENT RELATIONS, NATIONAL FISHERIES INSTITUTE

Mr. GUTTING. I am Dick Gutting from the National Fisheries Institute. The institute has 1,200 member companies which harvest, process and market fish throughout the United States.

What I would like to do is make a few brief remarks elaborating on some of the points in my testimony. Then I will be pleased to answer questions.

Mr. Chairman, when our members got a copy of this budget they got mad. When I wrote my testimony I was mad, and when I came into this hearing room I was mad.

But sitting through this hearing, I think right now I would have to say I am very sad, because I think it is apparent from your questions and the answers that what we are looking at is the dismantling of an organization, an organization which has been built up for 110 years.

The CHAIRMAN. It is very clear, without having the courage to say they are going to dismantle this Agency, they simply nibble away at it until there is nothing left and they have dismantled it.

Mr. GUTTING. Precisely.

The CHAIRMAN. The administration will not say: As a matter of policy we have decided the National Fisheries Institute and Oregon State University and the others can pick up these costs, or, as a matter of policy, we are backing out of the programs. They will not say that.

Mr. GUTTING. Absolutely. And I think you pointed out many facts proving that. You have spoken about the programs which have been terminated. You have mentioned the vessel reduction.

I will just give you another way of thinking about this. If you look at this budget facility by facility, laboratory by laboratory, and see what is left in the budgets, you will find no money or so little money that once you pay the light bill and the rent you have got a building but there is nothing in it.

I have done this and I urge the committee to look at it. There is the closing for all practical purposes of facilities in Gloucester, Oxford, Boston, New York, Milford, Sandy Hook, St. Pete, Galveston, Charleston, Tiburon, Manchester. It goes on. Now, this is dismantling. And when we think about it, we just do not understand it.

On the revenue side, you know and we know that a lot of these programs are paid for either through foreign fishing fees, or through special taxes. Our industry pays for all kinds of services and permits and when it all adds up what it really costs the American taxpayer is less than half of what is in the budget.

And when you think about it, when you cut this budget you are not only crippling programs and terminating services, but you are also cutting back on Federal revenues, because NOAA collects $3 in foreign fishing fees for every $10 it spends. If you cut that $10, you are going to start cutting back on the revenues. Somehow this never seems to get factored in.

You have mentioned in your questions, where else can we find the dismantling of a natural resource program? The Fish and Wildlife Service, the Department of Agriculture, you do not find these programs being dismantled.

Look at the foreign governments. This is something we have not mentioned. We have taken a quick look at Canada, Mexico, and Japan, and what did we find? The Canadians are not walking away from their fishery industry. They are investing twice for half of the U.S. production. Mexico, three times, three times the investment for half the U.S. production. Now, Japan is indisputably No. 1. They are investing twice what we are investing relatively speaking for the kind of production they are getting out of their resources.

I just do not understand this budget proposal. I do not understand why we have a proposal like this, when, as you say, Mr. Chairman, we are facing a trade deficit, and when, as Senator Stevens points out, we have the potential. We have the resources. There is a possibility for development. We are making progress. There is the potential for jobs and revenue. There is the potential to help on the trade deficit.

I do not understand it, Mr. Chairman, I just do not understand it. It does not make sense to us.

I would like to make a few other points. I indicate in my prepared testimony that fisheries science is important to us. I have described in my testimony a few examples of where I think fisheries science pays off. I have gone through the files, Mr. Chairman. I have 41 other examples. It all adds up into the hundreds of millions of dollars.

Senator, you asked about the short term and the long-term impacts, and I think that is an excellent question. What we are looking at is serious in both the long term and in the short term.

I cite an example in Alaska, Shelikof Strait. A research vessel was out there, it found a concentration of fish. It told the fleet about it. The fleet moved in. In 2 years we have gotten over $9 million. Now, if that research vessel is not there that $9 million is not there.

So what will we find this year and next year? Where will be the next Shelikof Strait? What we are talking about here is revenue and employment. We are talking about vessels in Alaska who are having trouble meeting their mortgages. They need to find these resources. They need the opportunity. Without it they lose their boats.

It does not make any sense. Without going on and repeating myself, I have one last comment. I think what we have to say is in my prepared statement. I would not want to have this hearing go by, Mr. Chairman, without taking advantage of it to thank you and other members of the committee for your leadership during the lameduck session, your support in particular for the Saltonstall-Kennedy Act and for the loan guarantee program. Rest assured, the companies I represent thank you and urge that you continue.

The CHAIRMAN. You are very generous in your praise. I assure you this committee—I am sure I can speak for those who are here and those who are not—are not going to see these programs scalped and scraped until they are barren and dead. We are not going to allow the administration to turn around our specific intent, whether it is the Saltonstall-Kennedy fund or any other program.

They are doing it, as a matter of fact, on the aviation funds on the appropriation bill we are considering. We passed some increases in aviation user fees last year on the specific promise that the moneys would be collected and spent. Now they are being rounded up, saved, not spent. That is a violation of trust.

Let me take you back to your days when you were a senior budget and planning official with the National Marine Fisheries Service.

Mr. GUTTING. Uh-oh.

The CHAIRMAN. You were involved in constructing previous budgets, right?

Mr. GUTTING. Yes, sir.

The CHAIRMAN. What role did OMB play in deciding the agency's budget?

Mr. GUTTING. Clearly the dominant role, Mr. Chairman.

The CHAIRMAN. Were you ever instructed just to impose across the board cuts for each program, regardless of merit?

Mr. GUTTING. We had wave after wave of instructions. At one point OMB directed the termination of a whole series of programs including the grants programs and some of the development programs. These have been in the budget the last 2 years for termination.

We had instructions that we were to cut personnel by so much and that we had to cut it across the board. We had instructions that we were to meet certain funding reductions. These would come one after the other from OMB. In some cases the agency did not have a choice. In other cases the agency had an opportunity to make proposals.

The CHAIRMAN. I am curious, when these suggested cuts came were the pertinent people consulted? The fishery management councils, were they consulted before these cuts came?

Mr. GUTTING. Not to my knowledge, Mr. Chairman.

If I may, I would like to elaborate a little bit on that comment. What happens in the budget process within the fisheries area is that you have got lots of different layers, and officials at every layer in the budget process have an opportunity to insert their own ideas. What happens is that one official will think that fishery development is wonderful but fishery science is not, so he will cut fishery science to build up fishery development. The next official feels just the other way around. So you have already lost fishery science; now you are going to lose fishery development.

The agency has been whipsawed back and forth between these various levels of decisionmaking. And when it comes, Mr. Chairman, it comes fast. It comes without consultation.

I think that the most startling example of that is the proposed reduction of the fleet. The industry certainly was not consulted. I do not know of anyone who was consulted. I do not know where that idea came from. When I asked the agency a month ago what the impact was, they could not tell me because they had not figured it out yet.

There was no plan. There was no consultation. This was, as we say in the budget process, off the wall.

Now, I do not want to leave the impression with you that that is all that happens in the process, because it is not. I think there is an example in the fishery budget, which is the kind of example I think we can support and I certainly endorse.

That has to do with the Pribilof Islands. Here is a situation where the administration wanted to terminate support for the Pribilof Island administration. They sent up a senior official who went to the State, who went to the islands, talked to the people who were impacted. He looked at the costs, looked at what could be done, and negotiated out a sensible proposal.

Now, I do not know whether the specific proposal is totally OK. I am talking about the process, the process of sitting down with the people impacted and working out a sensible plan. That has not occurred in any other instance I am aware of other than in that one instance.

What you see is things like the Columbia River program being proposed to be terminated and being restored, being proposed for termination again, being restored. No one is sitting down, talking seriously with the States. Nobody is really going out and talking to the industry: What really are the alternatives? Does this really make sense? What are the benefits of this program?

Somehow the budget process, Mr. Chairman, just does not lend itself to this kind of rational planning, and we wind up having what I think is a very sad morning.

The CHAIRMAN. Your organization just completed a survey of its members to see how they feel about certain Federal programs. What did this survey show?

Mr. GUTTING. This survey showed, Mr. Chairman——

The CHAIRMAN. Especially S-K and the Federal loan programs?

Mr. GUTTING. Strong support, Mr. Chairman. We have seen the payoff that has come from the specific development projects that have been funded by the S-K. I think you will be hearing further from the foundation people about that. I do not have the specifics, but certainly our members have seen the payoff and want to see that program continue.

With regard to the loan guarantee program, I would echo Senator Stevens' comments. I wish I were as eloquent as he. We certainly endorse everything he said and so do our members.

The CHAIRMAN. Senator Stevens.

Senator STEVENS. I do not have any questions.

I would not want to leave the impression here that this is the first time this has ever happened. I see some people in the back of the room who were around this committee years ago. We have seen the boats beached before. We have seen recommendations to terminate the program before. They are not going to be approved this time, either.

I do not think, however, that we should lose sight of the fact that we have got to be innovative and we have got to be able to move the funds that are available from the Federal Government from program to program and make sure that we have every single advantage we can for the fishing industry out of the Federal money that is the seed money to keep the whole system going.

I do thank you for your comments.

Mr. Chairman, I unfortunately have to be back at the floor by 11. I have read Mr. Branson's statement and, Jim, I want you to excuse me.

He has got some interesting figures in there as to where this money comes from. I think it is unfortunate that we do not have a budget system that takes into account where the money came from. I think we ought to start saying how much is from resources other than taxes and how much is from taxes.

If we did we would have a better show here, because this industry collects more than half of its funds from the Federal Government. The Federal Government reinvests in the industry from funds, and a major source of that is from these foreign fishing fees. I do think that we ought to find some way to do that.

The only thing I would add is, if we have to take any cuts—and I notice that New Jersey is taking a 5 percent cut. It is an $800 million loss this year because of prices. We know there are going to be some area of cuts in fishing activity in Alaska. But I think those cuts ought to be made in consultation with the people who are managing the programs, where they know the priorities at least, and not have some across the board cut or some irrational cut that will harm the program entirely.

There are some things that could be put off, and I would rather see them put off. But again, I would hope that your organization would join us in looking at these Federal programs and coming more and more to the conclusion that we must get fishing in the process of food production programs of the country, so that they do not get singled out for these reductions every year.

No one is suggesting that any of the agricultural research be terminated, that the commodity credit concepts be terminated. I do think we ought to join together with other people in the country in producing food for ourselves and for the world now, and make certain that we ought to be going into the export market in a tremendous way as far as our fisheries are concerned. We did, I guess, go in $4.5 billion this year. That could double if we did it right.

I thank you, Mr. Chairman.

The CHAIRMAN. Senator Lautenberg.

Senator LAUTENBERG. No questions, Mr. Chairman. Just a brief statement.

Mr. Gutting, you made an eloquent statement for the interests that you represent, and I really do feel that they are national interests. You have perhaps not ever been before a more friendly committee.

Having come out of the budget processes that I heard our chairman say, did you do the mindless number-crunching in those days?

Mr. GUTTING. Yes, sir, totally mindless.

Senator LAUTENBERG. I respect your suggestion about getting out and meeting the people. That is how I acquired an appreciation. I come from the northern part of our State. When I traveled and campaigned in the southern part of the State, I became keenly aware of how much the fishing industry means to us and our citizens.

One thing I was interested to see was the sums of money invested in fishing by other governments. You used a point of reference here and perhaps it might be a mistake. In your prepared testimony you said "as reflected in the $146 million fiscal year 1984 base program." But that is not the fiscal Year 1984 program. That is cut by roughly $54 million, unless I am making a mistake down here. It is $90 million.

Mr. GUTTING. Yes. That $146 million was with regard to the base program in only three of these activities, the basic subactivities for the agency. There are some special funds in addition to that. This is where we are starting from when we begin to start talking about cuts.

Senator LAUTENBERG. In any event, I would just conclude my comments, by joining in the observation of the chairman and yourself and other witnesses that if we stay the course that we are on, including the suggested cuts for 1985, it is more than an arithmetic conclusion that we will be totally out of business in a couple of years.

While I am the freshman member of this group, I believe given the concerns of the senior people here, that is not going to happen. I will do my best—in the interest of my State and this vital industry—not to let it happen.

Thank you very much.

Mr. GUTTING. Thank you.

The CHAIRMAN. Mr. Gutting, just for the record, the National Fisheries Institute, of course, is one of the organizations that various Government officials keep talking about as helping to pick up the cost of the programs that we are going to be dropped, along with universities and the States. Do you seriously think that your organization can pick up a significantly increased share of the costs of a variety of these research programs?

Mr. GUTTING. No, Mr. Chairman. We recently went out for a Friday afternoon celebration, having raised our first million dollars in annual dues. And compare that to $150 million or $180 million. We are just not in a position to take on that responsibility.

The CHAIRMAN. This is daydreaming. The trade associations of this country are, by and large, not rich. They live on relatively thin budgets. There is no way that the cost of critical research science—boats, charters, however they do it—are going to get picked up any-place else. It is just going to be dropped on the entire industry, and the country is going to suffer accordingly when the work is not done.

Thank you very much, Mr. Gutting. I appreciate it.

Mr. GUTTING. Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF RICHARD E. GUTTING, JR., VICE PRESIDENT, GOVERNMENT RELATIONS, NATIONAL FISHERIES INSTITUTE

Good morning, Mr. Chairman. I am Richard E. Gutting, Jr., Vice President of Government Relations for the National Fisheries Institute. The Institute is a national association representing more more than 1,200 members which harvest, process and market fish and seafood products. I appreciate the opportunity to appear before this Committee and present the Institute's comments on the 1984 fisheries budget of the National Oceanic and Atmospheric Administration.

Our fishery resources, Mr. Chairman, are one of this country's greatest natural resources and will become increasingly important in the future as a vital source of food. The Department of Commerce has estimated that with these resources, we can double our present harvest, generate tens of thousands of new jobs, and add billions of dollars to the gross national product.

The basic ingredients for this growth are there: we have remarkable natural resources, hardworking and dedicated people, and a free enterprise system. We have a good policy framework established by the Congress in recent fishery legislation. Another basic ingredient, however, is the fishery program of research, services and resource management provided by NOAA.

This national fishery program goes back over 110 years when Congress established the Fisheries Commission. Without this program, the business outlook for the U.S. fishing industry would be dismal indeed. Yet, it is this 110-year old system of science, services and resource management which the Administration proposes to dismantle in its 1984 budget. The Institute cannot support this "meat axe" approach to budgeting.

Much of what is being proposed by the Administration doesn't make sense. From the revenue standpoint, many of the fishery programs administered by NOAA are funded by user fees and special taxes. Last year, for example, for every $10 NOAA spent on its fishery management program, it collected over $3 in fees from foreign governments. This year, NOAA proposes to raise its foreign fishing fees from $35 million to $44 million for directed fisheries. An additional $5 million may be collected for foreign by-catch species. These fees are based upon the costs of fishery management. Thus, if you cut the fisheries budget, you cut federal revenue. The Institute estimates that if the Adminstration's proposed reductions are approved, $5 to $10 million in federal revenues would be lost.

NOAA's fishery program is also supported by special taxes on fish imports. The U.S. fishing industry and the American consumer depend upon foreign supplies for about half of their seafood supply. This imported supply is taxed and, under the Saltonstall-Kennedy Act, 30 percent of the revenues are supposed to be invested in efforts to promote the development of the U.S. fishing industry. In 1982, fishery imports generated tax revenues of over $87 million and $16 million was invested in fishery development.

The fishing industry also supports our national fishery program through millions of dollars in user fees. Foreign fleets pay for observers and make payments to the compensation fund. Domestic fleets contribute to the guaranty fund and pay for financial services and various permits. When its all adds up, Mr. Chairman, it is apparent that the real cost of the 1984 base program of the National Marine Fisheries Service to the U.S. taxpayer is not the amount suggested by the President's budget, but less than half this amount.

Even at the full amount stated in the budget, the public investment in our national fishery program is quite a bargain when you think about the size and value of the renewable resources that are being managed and developed. Last year, for example, the U.S. fishing industry landed approximately 2.9 million metric tons of fish worth over $2.5 billion. The total impact on the national economy of this catch was much greater—over $7.5 billion. More than 290,000 persons were employed by our industry either directly or indirectly.

Public officials from other countries must be surprised by the relatively small size of the national investment in our fisheries as reflected in the $146 million fiscal year 1984 based program of the National Marine Fisheries Service. Compare, for example, the relative governmental investment of other major fishing countries to the public investment we are making here in the United States. Canadian fishermen, for example, landed 1.23 million metric tons of fish in 1981. Its Department of Fisheries budget for that year was $294.5 million in U.S. dollars. This year, the Canadian Fisheries Department will spend $364 million. In other words, they are investing about twice the U.S. investment for less than half the production. Mexico, in 1980, landed 1.06 million metric tons worth $882.6 million. The budget for its Department of Fisheries the next year was $495.7 million, including $230 million for state fishing companies. Mexico, in short, invested almost three times what the U.S. invested for less than half our production. The number one fishing country in the world is Japan. In 1980, its fishermen landed 11.1 million metric tons worth $11.7 billion. The budget for that year for the Japan Fisheries Agency was $1.4 billion. The United States would have to double its investment to equal Japan's relative public commitment to its fisheries.

I recognize, Mr. Chairman, that some of the public investment in fisheries in these foreign countries and the United States is included in the budgets of other agencies. What is presented is only a rough indication of relative national commitment. Nevertheless, it is apparent that the total federal investment in the United States in our fisheries is surprisingly small when compared to the size of our fish production and its value to our economy.

Equally surprising is the proposed dismantling of our national fishery program at a time when we are facing a $3 billion annual trade deficit in fishery products. It is a time when there is substantial public interest and support for increasing our exports, particularly our food exports. This is also a time when the fishing industry is making progress toward fully developing our fishery resources despite significant adverse economic conditions. This is a time, in short, when we agree with this Committee's report to the Budget Committee, that we should take an aggressive stance. It is time to stop the mindless number crunching that seems to be dominating fishery budget proposals.

I would like to mention four areas where we are most concerned about the impact of the proposed budget reductions.

1. FISHERY SCIENCE

The first area is fishery science. NOAA's responsibility to conduct fishery research is set out in over 50 different statutes and international treaties. The essence of this mandate is best expressed in the Magnuson Fishery Conservation and Management Act which states that fishery resources should be managed and developed with the best scientific information available, and that this information is best obtained through a comprehensive research program in cooperation with the states, universities and the industry. To meet this responsibility, it is imperative that NOAA's fishery science be maintained. This must be our highest priority.

The fishery laboratories, Sea Grant colleges and state and private research institutions provide a unique knowledge system which supports our industry's productivity and efficiency. This fishery science pays off:

Off the coast of Alaska, in the spring of 1980, a fishery research vessel discovered large concentrations of pollock in Shelikof Strait. American vessels working with foreign processing vessels moved in and took 73,000 metric tons in 1981, valued at over $9 million ex-vessel. This year, the harvests are expected to be higher.

In the Gulf of Mexico, research on the growth rate and migration of shrimp led to a temporary closure of fishing grounds off Texas in 1981. This closure contributed to an increase in catch of 4.1 million pounds worth approximately $10 million.

Off the Mid-atlantic coast, surveys of clams have provided the basis for a stable annual harvest of $34 million. Fishermen today are relying upon survey data to locate and assess potential areas of harvestable clams.

In New England, satellite infrared imagery is being analyzed by fishery biologists to help longline vessels locate frontal zones and species concentrations and to help deepwater crab and lobster fishermen avoid gear loss and low catch rates associated with ceretain ocean currents.

In these cases, and in the many others like them, the fishery science network supplied the information when it was needed. The cost was low; the benefits very great. Yet, this is the information system the Administration proposes to eliminate.

Good science and fishery management and development are linked together. If fishery science is degraded, the risks of overfishing increase, and fishery scientists and managers become wary of approving high catch levels. The result is lower harvest quotas, reduced jobs and revenues, and a diminished supply of seafood to consumers. Fishery science, therefore, not only has paid off in a series of specific instances, it plays an essential role every day to the management and development of our fisheries.

The President's budget proposals tears into the heart of the cooperative scientific efforts of industry, universities, states and federal laboratories. Of particular concern to us are the proposals to terminate state fishery grants, lay up NOAA fishery research fleet, cut back on stock assessment and habitat research, and terminate the Sea Grant program.

While we favor the use of chartered vessels in fishery research in many instances, the wholesale lay up of the NOAA research fleet is unwise and would result in a significant cutback in needed stock information. Over 22 different stock assessments would be terminated and others reduced in scope.

The termination of Sea Grant is equally unwise. Our industry is facing an extremely complex array of problems. For us to be competitive, Sea Grant research is needed. Moreover, for the scientific system to work, the knowledge developed through research must not be left on the shelf to gather dust. A healthy Sea Grant program helps ensure that this does not happen.

Finally, the Institute supports the maintenance of the fishery research program at the base level. We believe, however, that there is a need to better coordinate this research with the industry, councils and universities. We have discussed the need for better coodination with Bill Gordon of the National Marine Fisheries Service and are confident that improvements will be made.

2. CONSERVATION AND MANAGEMENT

Fishery stocks must be maintained and their harvests controlled when necessary to prevent overfishing and ensure that maximum benefits are derived from these resources. The Institute believes that adequate public funding must be provided for these efforts.

The flexibility and responsiveness needed in fishery management is largely due to the regional nature of fishery programs and the cooperation and participation of industry and state agencies in management decisions. This management system, however, is threatened by the proposed termination or reduction of support for state fishery programs and the Regional Fishery Management Councils. This funding should be restored.

3. FISHERY DEVELOPMENT

The Institute strongly supports the continued use of receipts from the Saltonstall-Kennedy Act for fishery development. In this regard, the Institute thanks you, Mr. Chairman, for your leadership last December when provisions strengthening the S-K and loan guarantee programs were included in the gas tax legislation. We urge you to continue to support these programs.

Since the 1950's, import duties have been used for fisheries development, marketing and scientific research. Development projects funded with these receipts have accelerated the growth of our industry and should be continued. An example is the national marketing program called "Catch America" which has introduced lesser known and inexpensive seafood to the American consumer. Other important efforts which should be continued involve work to reduce overseas trade barriers and reduce the regulatory burdens on industry. Another important component of the fishery development program is the research conducted by the agency's three technological laboratories in Gloucester, Massachusetts; Seattle, Washington; and Charleston, South Corolina.

4. FEDERAL FINANCING

Under Title XI of the Merchant Marine Act, federal loan guarantees are available for financing the construction or reconstruction of fishing vessels and shoreside facilities. Because of regulatory foot-dragging, shoreside fishery facilities have only just now been able to take advantage of this program even though it was authorized by Congress over two years ago. It is not surprising that the Administration has proposed to terminate all guarantees in its 1984 budget. The Institute opposes this proposal.

Your consideration of our comments is appreciated. The program areas I have discussed are vital. I urge the Committee to continue its support of NOAA's fishery program to assure that our citizens benefit from the employment, food supply and revenue which can be generated from our fishery resources.

Mr. Chairman, this concludes my prepared remarks. If I can be of any assistance to the Committee by responding to questions, I would be delighted to do so.

The **Chairman**. Next we will take Lucy Sloan, who has been before this committee numerous times.

Lucy, let me apologize. I am going to have to leave and go to the Finance Committee, where I am told we have some close votes on the social security bill which they are marking up today.

Senator Trible will be able to preside for the remainder of this morning. I hope I can get back. I just do not know how far along they are on that bill. Apparently the votes are quite close.

Thank you very much, Paul. Thank you.

STATEMENT OF LUCY SLOAN, EXECUTIVE DIRECTOR, NATIONAL FEDERATION OF FISHERMEN

Ms. **Sloan**. Thank you, Mr. Chairman. We are pleased about the comments we have heard this morning about fishes, food, and the parallel betweeen fishes, food, and the agriculture program. It is something that the National Federation of Fishermen has thought for a long time was an understanding that was tragically lacking in the U.S. Government's feelings. With the fishing industry, we are a potential growth industry. That seems not to have been something that anybody has understood.

I will say that in defense of the current leadership of the National Marine Fisheries Service for the first time in the 10 years or so I have been representing commercial fishermen, we have had the philosophic support from the National Marine Fisheries Service that we have never had before.

As you recall, Mr. Chairman, we frequently come before the Congress and say will you please call these clowns up here and please explain to them once again what you intended with this piece of legislation or that. In this administration it has not been as necessary for us to do that and for that we are extremely grateful.

I think part of our problem is that it is not the National Marine Fisheries Service that makes these decisions but the Department of Commerce and the Office of Management and Budget who seem not in the Department of Commerce to be focusing at all on the balance-of-trade deficit. So that certainly is a refreshing change for us. We just wish it went further up the line in the administration.

As regards a variety of the comments this morning, first of concern to Senator Packwood, the Northwest salmon problem, I would suggest that the over $600,000 that may be slated for NACOA can perhaps be much more effectively spent on some of the salmon programs or other programs. We are not at all convinced that NACOA justifies even that amount of money.

As far as the problems that we have had with OMB and management funds, as you are aware, we are having a specific problem now with amendment No. 3 on squid. And one of the things that has very much concerned us is that OMB seems to be more persuaded, although they allege to be concerned about trade, they seem to be more persuaded by the foreigners' arguments than they have by the arguments of our own industry people.

And while I said in my prepared remarks we certainly reserve the right to disagree with any council, and frequently do, the councils at least have spent the time and effort to try to understand what they send forward to NMFS for approval and what goes to the National Marine Fisheries Service office to the Office of Management and Budget.

I would suggest, therefore, that the Office of Management and Budget pay a little attention to all of the affected parties, the councils and the industries, when they make their decisions, because their treatment of amendment No. 3 has been briefly abysmal.

The councils and the foundations, as I said in my testimony, are critically important to us. We would like them to be the focus of management and development in the future. When we look at the foundations and at what they have been able to achieve with relatively few dollars and look at the fact that some of them are making—those with which I am most involved and others, maybe—making real efforts to become independent of Government funds.

I think it would be a tragic waste at this point to cut off the funding for those foundations. They have been a mechanism which has never existed in the industry before. They are an opportunity for fishermen and processors and all others interested in the industry to work together. We have never had anything like that before. And it is working. At this point, to cut them back would be foolish.

On the question of the industry and the councils and the foundations working together with the National Marine Fisheries Service, I think that is vitally important because when we passed the Conservation Management Act, we were looking at conservation and management. I think with the amendments, the last four sets of amendments in 1978, 1980, and two in 1982, we have obviously gone beyond conservation and management to conservation and management for development for wise utilization and development. That, after all, is how we justify spending the taxpayers' money. It is not so that fish enjoy their birthday presents.

I think that what we have to do is to have a clear understanding, perhaps with help from your committee, that there should be some kind of much more coordinated effort to have the councils and the foundations working with the National Marine Fisheries Service and others in the industry who are interested, to see that when we look at scientific programs and when we look at development programs, that we coordinate those so that we have got management and development being reinforced by the science rather than patterns of science that have existed and may not be the most immediately germane to us at this point.

I would disagree with Senator Packwood to a certain extent on the question of chartering fishing vessels for research, in that we have had in the limited times that has been done, we have had reasonable success with those. One of the most beneficial aspects of that would be that it would involve the fishing industry more in the development of scientific research.

We had one circumstance up in New England where my people were on limits for species because the scientists said there were not any out there, and my guys were running them over the rail. Finally, they worked out with a Northeast Senator an agreement with one of the high-line fishermen would take out the scientists and they would go everywhere the scientists wanted to go. Then they would go everywhere the fishermen wanted to go. And when they did that, they came to find out when they went where the fishermen was, they discovered there were a lot more fish out there than the scientists had been telling the council and the council were using for data.

So I think those are some examples of how we might cooperate with science. There are other examples the foundations have shown. But the main thing I would like to see is that we use the resources that we have, and I sincerely hope you will get us back to some sort of reasonable level, that we use those resources more efficiently than we have in the past. Thank you.

Senator TRIBLE. I thank you for your testimony and your participation in these hearings today. The members of the committee have obviously expressed their reservations about the proposal before us and the concerns that proposal generates.

It seems to me the budget reductions will slow the process of developing the U.S. industry to the point where it can harvest all the fishing resources available within the 200-mile zone. That is a very troubling prospect. Part of that equation is the squid fishing matter that you raised. Did America have a squid fishing and processing industry a decade ago?

Ms. SLOAN. There was not the interest in it, in part, because there was not the market as long as the foreigners could have access to it. There was no incentive for the U.S. industry to go after it to the extent that they are now doing. We have been aided by NMFS's help in this.

But even more, in the efforts they have made to work with us, as have the councils, to insure that the market opportunities become available because without the markets, although as you may recall, an unfortunate venture called Amfish, where we were going to be taught how to catch squid.

As you recall, one of our objections was that we knew how to catch it and we knew where we wanted to market it. It was not those problems we had, it was getting access to those markets. In that regard, both NMFS and the State Department have worked with us and given us technical help, in gear to a certain extent, but even more help in terms of enabling us to understand what market patterns work quickly and so forth.

So I think that is an example of how a coordinated effort to develop a fishery is vitally important and would be hampered with the draconian cuts that OMB proposes to take place.

Senator TRIBLE. And those adverse consequences would obviously flow to other underutilized species as well, would they not?

Ms. SLOAN. Without question. Very definitely. It puzzles us, as I said in my testimony and others have said here today, that we can have over a $3 billion deficit, 12 percent of the balance-of-trade deficit, and talk about cutting back the agency that deals with that strategic resource. Food is a strategic resource. It is time that people began to focus on that.

Senator TRIBLE. Precisely the point I made earlier in the hearing. And I agree. Let me ask you this. There is an amendment to the squid plan which is currently at OBM amendment No. 3. You raised that issue in your brief statement. For the record, tell us about that amendment and why it is important.

Ms. SLOAN. Very briefly, I would defer on the technical aspects to the councils. But very briefly, it is important to us because it provides us with opportunities to catch and thus because it does, provides us with market opportunities. We have the squid. We know how to handle it. We have the proposals to handle more flexible or wise and look at what is actually happening rather than make predeterminations and have to react to those. It would enable us to work with markets with which we have been been able to work.

Senator TRIBLE. That amendment has been pending at OMB for some time, has it not?

Ms. SLOAN. Yes.

Senator TRIBLE. How long, precisely?

Ms. SLOAN. Several weeks, that I am aware of. Unfortunately, it did not go through NMFS as quickly as we would like. There were some problems there. Once it got out of NMFS, it has been extremely supportive working with us trying to get it through OMB.

The difficulty at OMB—Mr. Gutting and I met with one of the people who is working with it at OMB—the difficulty appears to be that the foreigners have gone in and wooed OMB and have somehow—and it is beyond me how—persuaded these people at OMB that we will lose trade if we phase out the foreigners under amendment 3 if we do not allow them direct access. That seems to me incredible with the $3 billion trade deficit, with our people interested in catching and processing and marketing the resource, what they can possibly be looking at.

But they appear to have jumped up some sort of I think spurious support—that is to say, in terms of actual dollars, not real—from those who provisioned some of the foreign vessels.

I question whether if one looked at the dollar amounts the provisioning of the foreign vessels would be a fraction of the potential, particularly with the multiplier effect for employment of having our people catching, processing and marketing that product would be.

Senator TRIBLE. I have expressed my concerns to David Stockman, with whom I served in the House.

Ms. SLOAN. Thank you.

Senator TRIBLE. I tried to underscore again the problems of our balance-of-trade deficit and the need to create jobs here at home. I am hopeful that by working together we can get some positive movement from OMB.

Let me ask you another question. What steps could we take on the Hill to encourage further development of joint ventures? We are obviously looking for a time when it will no longer be necessary. But for the time being, it is very important economically.

Ms. SLOAN. Well, I think, as you say, they are interim. And I would like to discuss a form of development that would help us make them shorter term rather than longer term, after I answer your question.

But in terms of doing that, the congressional support that we have received in discussions that you and your colleagues have had with the foreigners about the fact that we are indeed serious about getting rid of the total allowable level of foreign fishing and that we deem it infinitely more appropriate, if we cannot catch, process and market all of the product ourselves, at least we want U.S. citizens involved in the first stage of the process.

It has been tremendously helpful to us to have the cooperation from the Hill in the four sets of amendments, and I think that particularly as is the case with amendment No. 3, and I think you will see this as we get into that stage with other fisheries as we begin to get to the borderline stage where we could in fact take it all ourselves, help from you all on that score.

I think probably at the moment I would limit my request to having you assure the foreigners at every possible opportunity whether you were talking directly with them or in discussions like this or in other situations, that we intended that the joint ventures were only an interim step but that we wanted TALLF, when we passed 200 miles, we wanted TALLF to be even shorter than joint ventures because of the problems we have had with amendment No. 3 are an indication that the foreigners really do not believe it.

They did not believe it when we got them off Tanner up north. It has been your consideration of that support that has had a very important effect.

However, in an attempt to make the joint venture short term as well, one of the most important things to us is the extension of the capital construction fund to shore-based activities of any kind. My people, the people with CCF's in place, I would not be a bit surprised that you would see more activity, more crossover, as Senator Stevens suggested when he first discussed it so many years ago from fishermen, because we have funds in place that would allow us to do things like improve the infrastructure, buy better docks or more of them, freezers, other kinds of extensions of operations.

Were we to do that, as Senator Packwood said, it is a deferred program. It is not a loan program. It is a tax-deferred program. For that reason, we find it extraordinarily curious that again the financial committees have been sufficiently shortsighted so as not to understand that the return on investment could be higher than simply the revenues generated from taxes, when my people who do not wish to build additional boats have to pay taxes on those moneys.

Senator TRIBLE. Well, I thank you for your answer to that question and for your lively presence here today.

Let me say that as a new member of this committee and someone who has served on the Merchant Marine Fisheries Committee in the House of Representatives, as one who represents a State that depends heavily on our waterways for jobs, transportation, and recreation, that I am dedicated to expanding and developing our fisheries opportunities.

Our Nation spends a lot of money for which there is no apparent return. It seems to me that we ought to dedicate more moneys to those kinds of economic activities that will generate income and jobs for our people. And to that end, we will all work.

Ms. SLOAN. Thank you very much, Mr. Chairman. We are looking forward to it.

[The statement follows:]

STATEMENT OF LUCY SLOAN, EXECUTIVE DIRECTOR, NATIONAL FEDERATION OF FISHERMEN

Good morning, Mr. Chairman, Senators. I'm Lucy Sloan, Executive Director, National Federation of Fishermen. NFF is the only national organization of commercial fishermen in the United States. Our members fish from Mexico to Alaska and from the Gulf of Maine to the Gulf of Mexico. Among the species they fish are groundfish, salmon, crab, albacore tuna, shrimp, black cod, Pacific whiting, pollock, swordfish, sea bass, lobster, eels, clams, and oysters.

I'd like to highlight three major areas with which we're concerned: first, adequate—which means level or better—funding for the Regional Fishery Management Councils; second, funding for the Fisheries Development Foundations which will permit them to continue to serve as the focus for the industry's development activities in this next fiscal year; and third, considerably better coordination among NMFS, the Councils, the Foundations, and the industry to ensure that we achieve the most effective possible use of what dollars NMFS will have after this budget process is completed.

In discussions with my members and colleagues, it seems we all share considerable concern about the Draconian cuts the Office of Management and Budget inflicted on the National Marine Fisheries Service. One industry representative summed up our frustration when he asked a senior NOAA official whether the NMFS cuts were that Administration didn't understand NMFS and the fishing industry or that it didn't care. While, perhaps, that may appear to some to be unnecessarily severe, the roughly $50 million cut becomes quite absurd when one considers that the United States fishing industry may be one of the few U.S. industries at this point with obvious growth potential.

On the three major areas: First, the Regional Fishery Management Councils are critical to and for the industry. Although we continue to reserve the opportunity to criticize any Council's actions and to seek to change those we do, the Councils are the only mechanism is which the fishermen have statutory authority to participate in the management process for the resources outside state waters. At best, the Councils serve as an arena—and I use the word advisedly—in which fishermen and processors may try to work with others to arrive at least at better understandings of one another's concerns and, at best, at wise management utilization policies and plans. While it may be possible to streamline somewhat certain Council's operations, a bit here or there, on balance I think the Councils continue to be the best management investment for the fishing industry of which we're now aware. For that reason, and all that it implies, we recommend that the Councils be level funded (where level funding reflects cost-of-living funds) or increased.

Second, the Fisheries Development Foundations are very real assets to the fishing industy. They are demonstrably successful at providing fishermen and processors and all others who are interested in developing and improving the industry with various opportunities to work together. While we certainly do not think that the Foundations should receive government funding in perpetuity, it would be a cavalier, even tragic, waste of the investments to date, both from government and from industry, if funding for the Foundations were seriously to be cut this year. For example, the New England and West Coast Foundations are making successful efforts to increase their memberships; each is exploring non-government revenue-generating opportunities. The Mid-Atlantic Foundation is making similar efforts. And other Foundations may be as well. It is these three Foundations with which most of my members are involved. For these reasons, our recommendations for the Foundations parallels that we made for the Councils: at least level-funded, perhaps increased.

Third, we have, as you know, been frustrated for many years by our perceptions, and, in some cases, concrete kowledge, that NMFS could just as accurately stand for No Money for Services. The overhead has often seemed to us to be extraordinarily high and the return on investment extraordinarily low. For that reason, we would like to work with NMFS, the Councils, and the Foundations, through a meeting or series of meetings quite soon to discuss and then determine how best to use the resources which almost inevitably will be somewhat less than we seek. Examples might include more focussed use of science monies (including chartered fishing vessels exempted from government work rules); Council meetings—not hearings, which should be held in ports affected—held, as much as possible near major airports, not, at the ends of long scenic drives, in East Bycatch: and specific coordinated regional management and development programs, the results of discussions between a Council and a Foundation as to which fisheries have what kind of problems and potentials.

As well, we are concerned to ensure that various state and industry program are treated less arbitrarily; these include commercial and anadromous fisheries grants; fisheries market development; and development of product quality. Too, proposing eliminating the Fishing Vessel and Gear Compensation Fund, the Fishermen's Contingency Fund, and the Fishermen's Guarantee Fund is unnecessary, surely?

In short, we wonder if the Office of Management and Bduget does understand the fishing industry? For, if it did, surely it would understand the growth potential of an industry whose product represents 12 percent of the balance of trade deficit at a cost of over three billion dollars—especially since between 15 and 20 percent of the world's marine protein resources is in the United States fishery conservation zone. Given this, we look forward to working with you to restore to the NMFS budget amounts necessary to realize this potential.

Senator TRIBLE. Thank you.

We have two more panels. We will call panel No. 1, Mr. Branson and Mr. Carroll. Are they here? If so, please, gentlemen, come forward. The testimony is given on behalf of the eight Fishery Management Councils.

Mr. BRANCH. Senator, I am going to replace Mr. Carroll.

Senator TRIBLE. All right. If you will just state your name for the record.

Mr. BRANCH. Allen Branch, chairman of the South Atlantic Council.

STATEMENT OF JIM H. BRANSON, EXECUTIVE DIRECTOR, NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

Mr. BRANSON. I will start first, if I may, Mr. Chairman. I would like to thank you for the privilege of testifying before you this morning. I am honored to represent all three Pacific Management Councils at these proceedings. The Pacific, North Pacific, and West Pacific Councils are responsible for the management of over 2,700,000 square miles of U.S. fisheries conservation zone, where U.S. fishermen landed almost a billion dollars' worth of fish in 1981.

I have submitted detailed testimony on the proposed budget. I will not repeat it at this time.

The regional management councils have, as originally envisioned by Congress, proven successful management bodies, serving as the focal point for Federal, State, and private interaction. They have halted and reversed the decline in stocks caused by foreign fisheries prior to 1976 and have been instrumental in nurturing the growth of U.S. fisheries to utilize those stocks.

Gains from Council activities have been positive and measurable in new or expanded U.S. catches. But contrary to statements made by the National Marine Fisheries Service in presenting this budget, the major work of the Councils is not finished. The Councils have already reduced their costs by shelving some management plans indefinitely, reducing meetings, travel and other administrative costs.

But of the FMP's still active, not all have been implemented. Those that have are constantly being amended. In my own Council, the North Pacific, rapidly changing fisheries, shifts in resource availability, and increased knowledge about the resource have necessitated 29 amendments of four plans since the first was implemented in 1978. Constant monitoring, research, and revision is required to keep pace with fisheries tripling and doubling annually as the U.S. ground fisheries are doing in that area.

The proposed budget will eliminate the Councils as viable management entities. The number of FMP's will be cut to one or two per Council, public participation greatly reduced, and the Councils put on virtually a caretaker status, unable to continue as innovative managers of this valuable resource.

Fisheries imports create the fifth largest trade imbalance suffered by the United States, some $3 billion a year. Yet at the same time, U.S. fishermen caught only 39 percent of the 2.7 million tons of fish that came from our Fishery Conservation Zone in 1981. The remainder was taken by fishermen of other nations. We can and are redressing that imbalance. But we cannot continue to do so if we forsake the already small investment the Government has in management research.

In addition to virtually eliminating Council activity, the proposed cuts gut resource assessment, salmon enhancement, and ocean research, product utilization and quality control, and the habitat protection section of NMFS. For example, the vital ship time, which has never been available in the amount really needed, would be cut over one-third in our area to 600 days a year. Yet other nations, recognizing the true value of our fishery resources, are dedicating over 1,400 days of ship time to fisheries research in that same area this year.

As an American, I can only feel embarrassed by that comparison.

Vital work on salmon interception and enhancement is being dropped; yet until we have answers to those problems, salmon management between the Pacific Coast States, Canada, the Indian tribes, and the many other user groups will never be resolved.

Dall's studies of the impact of the Japanese high seas salmon fisheries on Dall's porpoise will end. We will not have the information needed for Marine Mammal Protection Act permit hearings in 1987 nor will we be able to monitor the effectiveness of Japanese gear modifications required to be in effect in 1984.

Those fisheries could have a disastrous impact on our salmon resources as well as the population of porpoises.

Mr. Chairman, the proposed budget is really a joke. I live in a small town, but our budget for schools this year is well over twice that proposed by National Marine Fisheries Service for the entire management and research programs of the United States. Of the $108.2 million requested by NMFS for fiscal year 1984, over half of it, $56.4 million, is for directly reimbursed programs, $35 million from assessments on foreign fleets for observers and Magnuson Act costs and U.S. fishing gear damage, and $22 million from Salstonstall-Kennedy funds.

Certainly, we should charge the foreigners every last penny their activity costs the United States, but we must also fund our own industry at an appropriate level. At the very least, level funding of approximately $170 million must be maintained. That is a small investment indeed to maintain and increase an industry of this growth potential.

I would like to change the subject just a little bit, Mr. Chairman, and thank this committee and its members for their help in the amendments to the Fishery Conservation and Management Act, which have speeded up the timeframe in which the Councils' amendments and plans can be implemented. We hope those changes will in fact be accomplished. Before those amendments were made, we had a number of problems.

We have one amendment, for instance, to the Tanner crab plan for the fishery off Alaska that was sent to NMFS for review in

1981. It has been with them for over 2 years now and has not been officially implemented. We hope that that will never happen again.

Thank you again, Mr. Chairman, for your past and future support of the Councils and for the opportunity to testify before you.

[The statement follows:]

STATEMENT OF JIM H. BRANSON, EXECUTIVE DIRECTOR, NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

Mr. Chairman and Members of the Committee, thank you for allowing me to testify before you this morning on the proposed fiscal 1984 Budget for the National Marine Fisheries Service. It is a great honor and a responsibility to represent the North Pacific Fishery Management Council, the Pacific Fishery Management Council, and the Western Pacific Fishery Management Council in these proceedings. These three Councils are responsible for the management of 84 percent of the U.S. Fisheries Conservation Zone, over 2,700,000 square miles, where U.S. fishermen landed almost a billion dollars worth of fish in 1981.

I think I can make no better beginning than by quoting from the lead article of the Nautilus Press Marine Fish Management Newsletter of January 1983, which said, "The fisheries portion of the new NOAA budget should be declared a federal disaster area."

I believe that is an accurate assessment of the Administration's proposal. The proposed budget of 108.2 million dollars, a cut of over 59 million dollars from the level-funded 1983 budget includes a funding reduction for the Regional Management Councils of 57 percent. Exactly what priorities were used within the Department of Commerce to determine an overall reduction in the budget of the National Ocean and Atmospheric Administration of 10 percent, but that cuts NMFS 38 percent and the Councils 57 percent is hard to imagine.

The proposed 57 percent cut in Council funding will reduce them to completely ineffective caretaker status. Contrary to the statements made by the Assistant Administrator for Fisheries, Bill Gordon, before Congressman Breaux's Subcommittee, the Councils have not finished the major part of their work. We have completed a number of fishery management plans; some of them have been in effect for several years, but we are finding that changing circumstances and increasing knowledge have combined to require frequent amendments if we are to keep pace with the volatile and changing U.S. fishery. My Council, the North Pacific, for instance, has drafted six management plans. Four of them have been implemented, and we have, since the first one was implemented in 1978, made 29 amendments to those plans.

We have already cut corners wherever possible by reducing the number of meetings and lowering administrative costs. However, without greatly cutting or eliminating public participation and shelving some very important fishery management plans, we cannot operate on less than we receive in 1983. In fact, the North Pacific Council, which has embarked on the thorny path of limited entry for the halibut fishery (at the request of the participants in that fishery), will need more than it had in 1983 if it is to successfully conclude that study. And by successfully I mean not necessarily implementation of limited entry, but an objective, thorough appraisal through the public process of the theory and systems.

Information on the proposed 1984 budget has not been readily available to the Regional Councils. They were not privy to its development and with few exceptions have not been able to get budget breakdowns for programs which affect them. While we sympathize with the NMFS officials who must try to defend this mess, we believe that the Councils, with their responsibility for the management of the resources in the Fisheries Conservation Zone, should have a voice in prioritizing and directing program changes and, if need be, cuts in those areas of NMFS that directly affect Council activity.

The fishing industry brought in over $2.5 billion to our fishermen in 1981, yet they landed only 39 percent of the 2.7 million metric tons caught in the U.S. FCZ. The American fisherman is capable of increasing that percentage and is doing so rather rapidly in a number of areas. But their ability to do so depends on good stock assessment and resource managment, with continued market development and support by National Marine Fisheries Services and the Regional Councils. The proposed budget is a slap in the face to an industry that exported $1.2 billion worth of products in 1981 to help defray the fifth largest trade deficit suffered by the United States. We imported $4.2 billion worth of fishery products in the same year. Much of that product could have been produced by our own fishermen, and will be if we continue to give the industry some encouragement to expand and they have a solid, well-managed resource base on which to do so. This is an industry where a relatively small investment by the government will bring good returns. It will slow and eventually stop a major dollar drain, increase employment, profits, and tax returns. We can't afford to cut it any further.

Because the Regional Councils have not had access, in all instances, to specific cuts proposed in programs by the FY/84 Budget, we cannot completely define how those cuts will impact us. From the information we have been able to get affecting programs in the Northeast Pacific and Bering Sea, we can make the following observations. The very important ship time needed for resource assessment and fisheries research will be cut from 950 days in 1983 to 600 ship days. Three of the fishery research ships operated by the National Ocean Services will be mothballed. Only one will be left in service. Of the money saved by NOS by mothballing those ships, half will be given to National Marine Fisheries Service to charter commercial vessels for resource assessment and research. Incidentally, that money ($4,300,000) is new money in the NMFS budget. It's always been part of the NOS budget in the past. Resource assessment and fisheries research cannot be accomplished by utilizing commercial fish catch data as implied by NMFS testimony before Congressman Breaux's Subcommittee two weeks ago. It does take dedicated ships and proven, well designed programs. In contrast to the United States, other countries interested in the fishery resources of the United States Contiguous Fishery Zone are dedicating over 1,400 days of fisheries research ship time to projects in the Bering Sea and Northeast Pacific. Japan will have ships on the grounds for 900 days, the Soviet Union for 257, the Republic of Korea for 30, and Canada for 20. Even though those ships must have research plans approved by the United States before they can work in our FCZ and must take U.S. scientists and observers if requested, they do not satisfy our data needs. For one thing, we lack money and people to put scientists aboard all of them. In 1982, 20 percent of the Japanese ships, 60 percent of the Russians, and 100 percent of the Korean were accompanied by U.S. scientists in the area of reference. Even with an observer aboard we do not, and cannot, for a variety of reasons, get comparable data to that gathered by our own efforts. These countries, willing to dedicate this amount of time by fisheries research ships generally larger and more expensive than those used by the United States, are apparently more aware of the value of the resource in our FCZ than is the Administration. As an American I can only be embarrassed by such a lopsided commitment.

Other reductions would cut the only significant federal fisheries research establishment in Alaska, that at Auke Bay, by 75 percent and greatly reduce the very small station at Kodiak. Lost would be the research on U.S.-Canada salmon interceptions, sablefish and Pacific Ocean perch assessment programs, and drastic reductions in king crab and Tanner crab assessments and research. These are very important fisheries to the United States. All of them have problems which if solved would greatly enhance their value.

NMFS plans on closing three research facilities in the state of Washington, cutting fisheries enhancement work by over 50 percent. That is the critical salmon work involving stocks shared by the U.S. and Canada, Columbia River enhancement programs, and other anadromous fish research so important to that major commercial and recreational fishery complex.

Product utilization and quality research will be almost completely eliminated. The rationale for doing so, when expansion of many of our new fisheries hinges in part on solving product quality problems, continuing quality problems in other fisheries, and ongoing work to develop new products and new markets, is difficult to discern.

The ecosystem modeling and multi-species research and management projects based on modeling will be severely impacted. That is one of the most promising avenues now being explored to develop comprehensive management systems for all of the animals inhabiting the rich ecosystems of the Northeast Pacific and Bering Sea; management that will consider marine mammals, birds, and fishes. Further delays can be expected in bio-economic analyses needed in fishery management plans.

Marine mammal research funding will be cut entirely for the U.S.-International Whaling Commission Observer Program at Japanese land-based whaling stations. The U.S. will be unable to fulfill the second year of coverage as committed in the U.S.-Japan bi-lateral agreement. We would not have observers for the next two sperm whale seasons nor the 1984-86 Bryde's whale season to check for infractions of IWC regulations.

The budget completely eliminates the Dall's Porpoise Cooperative U.S.-Japan Research Program. We will not be able to complete biological studies of Dall's porpoise nor assess the impact on their population by the incidental catch in the Japanese salmon mothership fishery, an assessment needed for Marine Mammal Protection

Act permit hearings in 1987. This could have a very strong adverse impact on the U.S salmon industry if permit problems force the Japanese high seas salmon fishery beyond INPFC control. We would not be able to monitor the incidental catch of Dall's porpoise to close the fishery when the incidental catch limit is reached. Nor would we be able to monitor the effectiveness of gear modifications by the Japanese which, as required by the North Pacific Fisheries Act, are to be implemented in 1984.

All funding for aquaculture is being cut. This is an industry showing some real promise in the Western Pacific Council's area as well as the West Coast. That it has potential can, I believe, be readily ascertained by the success of Norwegian cultured salmon which has made such an impact on the U.S. salmon markets within the last two years.

The budget eliminates all funding for cooperative state/federal programs under various grant acts, programs which have contributed immensely to fishery research and management at a very reasonable cost to the Federal government. Habitat protection and research is greatly reduced. The expectation of the Administration apparently is that these programs can be picked up by the states, yet it is hard to see how the Federal government can abrogate a responsibility for interstate and international resources, particularly in a time when state financing is, if anything, more severely strained than that of the Federal government.

Having examined in some detail those programs in the Pacific area that will be affected by the proposed budget, I'd like to make it clear for the record just how small the proposed NMFS budget is in real, i.e., non-dedicated, money. Of the $108.2 million proposed, $12 million is earmarked for the foreign observer program. All of that money comes directly from the foreign ships that host those observers. Approximately $20 million of the proposed budget will be the NMFS share of the expected $43 to $45 million generated by foreign fishing fees to defray costs of Magnuson Act administration caused by the foreign fishery in the FCZ. Two million dollars comes from the Fishermen's Contingency Fund and the Fishing Vessel Damage Fund, one directly recoverable from the offshore oil industry, and the other, again, from the foreign fleets in the FCZ. The Administration plans to shift driectly into NMFS all of the Saltonstall-Kennedy funds, some $22.6 million, although how they can legally do so is still undetermined. That means, Mr. Chairman, that approximately $56.6 million, 52 percent of the proposed budget, will come directly from sources other than general revenues, most of it directly from charges on foreign fishing fleets now fishing within the FCZ. Certainly there can be no argument against those foreign fleets paying their own way, and they should do so to the last dollar required, but it also seems proper that we should fund our own fishing industry to safeguard those magnificent resources it's in the process of developing. The $51.2 million the administration itends to spend on fisheries and fishery programs in 1984 would not keep a small town school district running for the same period of time.

We believe beyond any doubt that the Regional Councils have lived up to the role envisioned for them by the foresighted drafters of the Magnuson Fishery Conservation and Management Act. For the first time in the history of American fisheries, thorough plans stating the managment rationales and objectives for most of the major fisheries of the United States have been developed. Information has been collected in a single place and everyone who wishes to participate, wherever they may reside or whatever interest they may represent, has been able to participate in the process. The Councils have truly been a middle ground between the Federal government and the states, putting management on an area-wide rather than a statewide basis in a way that has never existed in the past. They are a long ways from finishing their work. I believe their roles will become more important as the foreign fishery disappears and the entire catch is taken by United States fishermen. That is happening quite rapidly. For example, the American groundfish catch off Alaska increased from less than 9,000 tons in 1979 to 215,000 tons in 1982. We expect that it will approach 400,000 tons this year. But there are still 1,400,000 tons of the groundfish species being taken off Alaska by foreign ships.

We want to hasten the departure of the directed foreign fishery. As in all the other areas, that is going to necessitate continued active Regional Council participation. A 57 percent cut in Council funding will reduce Council meetings to two or three a year, eliminate public advisory bodies, reduce Council staffs to three or four at the most, and eliminate all but one or two plans apiece. The cuts greatly endanger the possibility of a quick and orderly increase in the U.S. fishery in the Pacific region that will add at least $300 million annually to the ex-vessel value of American fisheries. A small investment will bring an excellent return. We ask your aid again, as we have so frequently in the past, in helping us continue a rational, forward-looking fisheries program in the United States.

Senator **Trible**. Thank you, Mr. Branson.

Now, it is Allen Branch?

Mr. **Branch**. Yes, sir.

Senator **Trible**. And you, sir, are the chairman of the South Atlantic Management Fishery Council? Welcome.

STATEMENT OF ALLEN F. BRANCH, CHAIRMAN, SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

Mr. **Branch**. Mr. Chairman, members of this committee, I am here today to speak on behalf of the five fishery management councils on the Atlantic side of America: The Caribbean, Gulf, South Atlantic, Mid-Atlantic, and New England. Each council is submitting separate written testimony on its own behalf for the record.

We come before you today with full understanding of the need to attend Federal expenditures and, where possible, to reduce them. We are all in general accord with the administration's basic goals in this respect, and you will find that the councils in various ways have cut back over the past 2 years. We have reduced a number of our regular meetings. The gulf has cut its meetings by half, the South Atlantic from 10 to 6 per year, and New England from 12 to 9. The Mid-Atlantic is down to 10, and the Caribbean to 5 or 6 per year.

The Mid-Atlantic as well as the Gulf is operating with a smaller staff than 2 years ago. Reductions have been made in the size of committees, and economies have been sought in other areas as well. This has occurred in the time of continuing inflation, so that we have already taken real cuts in the level of our funding.

We will not make detailed comments on the NMFS budget, although some of us may comment individually on certain specific programs. We do feel, however, that the 38-percent reduction proposed by the administration may well be excessive and that some of the priorities may be mistaken.

The Magnuson Act now requires advanced payment by each foreign vessel of a surcharge sufficient to cover the cost of a U.S. observer. Therefore, both the $6.95-million available in fiscal year 1983 and the additional $5.05-million requested for fiscal year 1984 for the foreign fishery observer fund will be fully covered from foreign vessels and does not represent a true cost to the United States, despite the fact that such amounts must be included in the appropriations act.

Our greatest concern is the enormous 57-percent reduction proposed for funding of the eight regional fishery management councils. Although none of the councils was consulted regarding the level of funding that we might require in fiscal year 1984, we understand from Mr. Gordon's earlier testimony before the House Subcommittee on Fish and Wildlife Conservation and the Environment, that NMFS argues that the bulk of the councils has been completed and that only a little monitoring of plans already in place is now needed.

That same argument was advanced a year ago when lesser but very substantial cuts were also proposed. It was not valid argument then and it is not now.

A very great deal remains to be done. In New England and the Mid-Atlantic, for example, work is still underway on a management plan for the Atlantic immersible fin fish, the most valuable of all our Atlantic north coast fishes, with a landed value of some $726.7 million in 1981 and a total value to the region of $375 million annually.

Other plans for fisheries are of less dollar value but of enormous importance to the coastal regions where they are still not completed. Furthermore, even monitoring and revision of completed plans will not be the routine one-handed task that NMFS suggests.

We do not suggest that our efforts are solely responsible for all the money and other benefits that derive from our gulf, Caribbean and east coast fisheries. We believe, however, that the efforts of the councils have clearly and substantially added to these benefits.

Two striking examples will demonstrate the point. The Gulf Council's shrimp plant for a species already fully utilized yielded $12.1 million additional benefits to the fishermen in its first year of implementation. The Mid-Atlantic Council plan for squid, butterfish, and mackrel, also called underutilized species, has drastically reduced directed foreign fishing for these species.

The U.S. harvests, both domestic sales and exports, are up, and there is a strong leaning toward U.S. processing of both squid and butterfish. As a result of this plan, the return to the U.S. industry for 1983 is expected to be $55 million. In 1976, comparable returns were $2.6 million.

We believe that the $4 million which our five councils cost in fiscal year 1982 is clearly a modest and very wise investment in commercial and recreational fisheries, but constitute such an enormous economic and social benefit to the Nation, that we believe that to hamstring the councils by the kind of crippling cuts the proposal would be to risk all the benefits achieved so far and to preclude the achievement of additional benefits in the future.

The Congress in its great wisdom passed the Magnuson Fishery Conservation Act in 1976 and as part of that law created the eight fishery management councils. The councils are unique institutions providing a forum and a mechanism for consolidation of reasonable views, values, and interested plans for the management of regional fisheries. We believe they are working, and we believe they are getting better with time. A great deal of management planning and decision making will always be necessary in the management of our fishing resources. No one could see that this work could be avoided by reducing the size of the councils or the level of their activity. If it is not done by the councils, it must be done by the Federal bureaucracy.

We believe the necessary work can be done better by the councils and that the decisions necessary will then reflect the needs and desires of the various regions. We also believe that it is what the act intended. Certainly, it is much more in the spirit of the administration expressed desire and intent to reduce the role of the Federal Government. We doubt that the Government could in any circumstance achieve the level of industry and public involvement that is reflected in the operation of the councils.

The proposed funding level for the councils would have the effect of destroying the council system. The councils might continue to exist in name, but they would become little more than pro forma advisory groups. They would certainly not be able to utilize public participation to formulate these particular needs nor prepare management plans and appropriate regulations to carry out such policies.

We urge the committee not to reduce the funding for council operations. Were you to provide the councils with adequate funds to continue the progress already achieved, we believe the result of the councils' activities thus far merit that level of continued support. And on behalf of the five councils, Mr. Chairman, I thank you for the opportunity to present our views to you.

I also have with me today the five council chairmen and the executive directors. And if you or your committee have any questions, they are ready to respond.

I would also like to thank you and this committee for the part that you played, the most important part, in the FCMA amendments. They are going to be a great help to the councils. And I would like to personally thank you on behalf of my five councils. Thank you very much.

I would like to thank this committee for the part you played in the FCMA amendments. They are going to be a great help. I would also like to thank you on behalf of the five councils. Thank you very much.

[The statement follows:]

STATEMENT OF ALLEN F. BRANCH, CHAIRMAN, SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

The South Atlantic Council wishes to present its comments for the record of your Committee's March 10, 1983, hearing on NOAA's fiscal year 1984 Fisheries Programs Budget. We appreciate this opportunity to express our views.

First, we want to commend you, the members of your Committee, and Commitee's staff for your role in enacting very important fisheries legislation. Passage of the Magnuson Act was truly the landmark in fisheries management and the recently adopted amendments will greatly improve its effectiveness.

Our Council is deeply concerned that the funding reductions proposed by the Administration are excessive and would seriously jeopardize the effectiveness of the fisheries management programs established under the MFCMA and other Acts which have provided manifold benefits to our Nation's fishermen, its fishery resources, and its economy. We feel that adequate funding for resource surveys, data collection, and analysis is essential not only for the Council management process but for sound fisheries management under any program. We question the NMFS' capability to continue these activities at a viable level under funding reductions of the magnitude as proposed in this budget.

The South Atlantic Council is aware of the need for economy in government and has demonstrated this by adjusting to previous funding reductions. At the outset of the 1982 fiscal year, the Council reduced the number of its meetings from ten to six and at mid-year instituted additional cuts in its operating costs by terminating its Information and Education Specialist and discontinuing FICA payments for Council members in order to accommodate an overall funding reduction of six percent from its fiscal year 1981 funding level. We recently reclassified a clerical position left vacant for nine months and filled it at a salary half that previously paid.

Additional adjustments in the Council's activities have been necessary this fiscal year under the fiscal year 1982 funding level. We schedule committee meetings to coincide with Council meetings whenever possible and have had to reduce the number of meetings of our Scientific and Statistical Committee and Advisory Panels in order to reduce travel costs. The Council intends to continue exercising every economy possible. However, imposition of the proposed fifty seven percent cut in Council funding is much greater than can possibly by accommodated and still maintain Council operations that could in anyway be identified with what was intended by the Congress under the Magnuson Act. This proposed funding cut would, in effect, put the Councils out of business.

The South Atlantic Council is actively engaged in eight fishery management plans and in a consultative mode on six others. Three management plans, developed jointly with the Gulf of Mexico Council as administrative lead Council, have been completed. Two of these three plans, the Spiny Lobster and Coastal Migratory Pelagics (Mackerels), have been implemented. The third of these, the Coral and Coral Reefs plan, has been approved for implementation with no effective date indicated. The Billfish and Swordfish FMPs cover the five council area of the New England, Mid-Atlantic, South Atlantic, Caribbean, and Gulf of Mexico Councils. The South Atlantic Council has the administrative lead responsibility for these two complex plans. Public hearings on the Swordfish Plan will commence on March 15. The Billfish Plan is in an advanced stage of development with completion anticipated following modifications and the approval of the revisions by the five Councils. The Council's Snapper-Grouper FMP has been completed and submitted for formal review. Eight families consisting of 69 fish species that support one of our area's most important fisheries will be managed under this plan. The eight units are snappers, seabasses and groupers, porgies, tilefishes, grunts, triggerfishes, wrasses, and jacks. The Calico Scallop FMP, a joint plan in which the Gulf Council is assisting, is in an advance stage of development. The Council is also developing a management plan for the South Atlantic Penaeid Shrimp Fishery. This plan will address another of our area's major fisheries and is presently in an early stage of development.

The Council continues to have a great deal of work ahead. Not only in completing plans under development. As our management plans are implemented proportionate levels of Council activity have to shift to meeting its responsibilities as they relate to performance monitoring and providing for amendments as warranted.

Continuing our operations at the present funding level will require us to maintain a reduced activity schedule but the Council can still be effective and able to meet its responsibilities under the MFCMA albeit at a slower pace. This will, in effect, be a funding reduction due to the influence of inflation. Even though the impact of inflation has lessened, the Council will be faced with making additional adjustments in its program.

We respectfully urge the Committee not to reduce existing levels of funding to the Council or related activities of the NMFS vital to the fishery management process. Funding at the current level, with consideration to increases that will offset impacts of inflation, would give recognition to the need for economy and yet ensure management of our Nation's fisheries from which benefits can continue to be realized.

Again, we thank you for this opportunity to present our comments on the fiscal year 1984 NOAA Budget. We are including attachments relating to the status of our fmp's, the format we follow in plan development, and the impact value of several of the fisheries we are addressing in our management plans. We will appreciate them being included along with this letter for the hearing's record. Please advise us should you desire additional information.

Attachments.[1]

Senator **TRIBLE**. Thank you very much, Mr. Branch. Thank you for your testimony here today. You have very ably represented the councils. Let me ask you just two very quick questions, if I may.

In discussing these budget questions with your colleagues on the other councils, have any of them expressed agreement with the administration's budget submission?

Mr. **BRANCH**. No, Mr. Chairman.

Mr. **BRANSON**. No, Mr. Chairman.

Senator **TRIBLE**. It would be fair to say there is universal opposition to these proposals?

Mr. **BRANSON**. A very accurate statement.

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[1] Retained in committee files.

Senator **Trible**. All right, sir. Lest there be any mistake about that, we wanted to give you an opportunity to establish that for the record.

The administration claims the councils need less money because most of the important management work has been completed. Now, each of you have addressed that question here today and it is also my own judgment that the work is unfinished. Changes to existing plans are needed; and new fisheries developed that will need management. There is a lot to be done. Would you care to expand on that observation?

Mr. **Branch**. For the South Atlantic Council, I will speak for my council. At the present time, Senator, we have several plans that we are working on. As a matter of fact this particular month, on March 15, we are beginning public hearings on swordfish, which is going to take some time. And, of course, when we do get all the comments in you know there is a lot of work to be done then.

We have also got calico scallop that is a very important fishery, particularly in the South Atlantic area, that we are working on. We have got that progressing very well. We have also sent forward our snapper grouper plan for implimentation.

We are working on, as I said, swordfish. We are working on billfish. So we have an awful lot of work to do. How long it's going to take we don't know but there is certainly a lot of work to be done in our council, and I am sure in the other councils as well.

Senator **Trible**. Mr. Branson.

Mr. **Branson**. It is a similar situation. We have a greatly expanding fishery opportunity in most of the areas that I am speaking for today, the western Pacific and the north Pacific particularly, where the fishery has either been completely undeveloped as in the case of the western Pacific or it has been developed by other nations and we are now trying to move them out and move our own industry.

One of the basic things we are running into is that we did not know as much about those resources as we thought we did, and we did not think we knew very much. As we add information, and we have added an incredible amount of information to this whole process since the councils were formed, not necessarily because the councils did it but because of them the whole process is now more integrated than it was before, we have got to change our management plans, our methods, our concepts, as we learn these things and as the fisheries themselves change.

Senator **Trible**. I thank you very much and I think the point has been well made. There is work still to be accomplished, important work. Yes, sir.

Mr. **Branch**. Senator, I would like to make one more comment. I failed to mention that we are also in the process of doing a shrimp plan in the South Atlantic, which is a very important fishery in that particular area.

Not only that, but several of these plans that we are doing are in joint with the Gulf of Mexico Council and I can assure you they have got a lot of work to do also, because a lot of our efforts are jointly. Thank you, sir.

Senator **Trible**. I hope this committee will be in a position, gentlemen, to assist you in the job you are doing. Thank you very much for being here.

Mr. **Branson**. Thank you very much, Mr. Chairman.

Mr. **Branch**. Thank you, sir.

Senator **Trible**. We have a second panel today with testimony on behalf of the six regional fishery development foundations. Mr. Peter Granger and Mr. Roger Anderson. Gentlemen, you are welcome. Just go ahead, please.

Mr. **Granger**. You have my testimony, Mr. Chairman.

Senator **Trible**. All right, sir. If you will just identify yourself for the record and proceed as you will. We have the testimony. It will be made part of the record so you are certainly free to summarize your statement.

STATEMENTS OF PETER GRANGER, EXECUTIVE DIRECTOR, WEST COAST FISHERIES DEVELOPMENT FOUNDATION, AND ROGER ANDERSON, EXECUTIVE DIRECTOR, GULF AND SOUTH ATLANTIC FISHERIES DEVELOPMENT FOUNDATION; ON BEHALF OF THE SIX REGIONAL FISHERIES DEVELOPMENT FOUNDATIONS

Mr. **Granger**. Thank you.

I am Pete Granger from the West Coast Fisheries Development Foundation. We represent commercial fishing interests in Washington, Oregon, and California. In addition I am here ostensibly to represent the Alaska Fisheries Development Foundation and the Pacific Tuna Development Foundation, who have similar regional jurisdictions.

Basically the fisheries development foundations and the commercial fishing industry of Alaska and the west coast of the United States and the central Pacific believe in a balanced partnership between Government and industry.

We particularly want to point out the recently announced goals of the Department of Commerce itself, and I don't think this has been mentioned specifically today, with respect to fisheries development. Among those goals are increasing the amount of exports significantly and their contribution to the balance of payments and in general increasing the contribution of domestic fisheries to the GNP by 1990.

But we are very concerned that the proposed budget does not provide for implementation or effort toward these goals specifically within NMFS and indeed, it detracts from them. Specifically proposed cuts in the following National Marine Fisheries Service areas will, we feel, endanger existing efforts: utilization and research, and fisheries development for sure, on a regional and national level.

I might point out where earlier Bill Gordon said that these particular cuts advanced will reduce the level in these areas to a catalyst. We feel that the level right now is at best a catalyst and reduction in those levels will really put them at a level where they will have the ability to do virtually nothing.

Product quality is another area we feel needs to be bolstered. Support for the fisheries management councils, habitat analysis, and enforcement and surveillance; also termination of the sea grant college program is viewed with considerable alarm.

We certainly feel that it is imperative that the S-K funds continue to be available both to the National Marine Fisheries Service and to the industry. They are the mainstay of many programs in research and development. Ones that we are particularly interested in are domestic and export marketing programs, especially since these programs are gaining such momentum at this time.

I would like to point out specifically a couple of situations that we are seeing on our coast where this breakdown in the research, development, and management services, this combined approach, would be certainly unfortunate. We have a condition now on the California and Oregon coast that is a real anomaly. It doesn't happen very often. It is called an "El Nino." It is an intrusion of warm water from the equatorial regions that is creating on a hemispheric basis, a number of anomalies that will directly affect historic fishing patterns.

We are seeing it in our squid fishery in the southern California areas. There was no squid fishery in San Pedro this year and it looks like there won't be any in Monterey. This means that there will be increased pressure to start a fishery off the Oregon coast.

As a development foundation, we are very intimately involved in seeing that this fishery is developed on an organized basis. We certainly don't have the ability, and really quite frankly at this point neither does NMFS or the State people, to assess what effect this warm water intrusion is going to have on both established fisheries and on fisheries that have a potential for development.

One other area that I might point out would be that of waste utilization. It is a subject that has not come up today. It is a subject and a problem that faces many, if not most, of the people in the industry.

Our particular port by port situations as far as seafood waste utilization are as different and myriad as the amount of products that come in. Some rely on fur breeders as a source of utilization of their seafood waste. Others use local rendering plants. Others dump their shrimp and crab shells on a farmer's fields, and it goes on and on.

These are at best short-term solutions. There are S-K projects and in-house NMFS projects now looking into long-term solutions for waste utilization problems. In effect cutting off the funds would certainly endanger some sort of solution in this area.

With that, I will close and let Roger go ahead and testify.

[The statement follows:]

STATEMENT OF PETE GRANGER, EXECUTIVE DIRECTOR, WEST COAST FISHERIES DEVELOPMENT FOUNDATION

Mr. Chairman and Senators, my name is Pete Granger, Executive Director of the West Coast Fisheries Development Foundation. The West Coast Fisheries Development Foundation represents the commercial fishing industry in the states of Washington, Oregon, and California. Its membership includes major harvesting associations, processors, distributors, brokers, and retail markets. I am speaking here for the fishing industry of the western United States and the Pacific. I am pleased to be able to testify before you today.

We applaud the efforts of the Commerce Committee to scrutinize the fisheries budget specifically.

The fisheries development foundations and the commercial fishing industry of Alaska and the West Coast of the United States believe a balanced partnership between government and industry must exist as the most effective means for managing our nation's fisheries resources. Alaska and the West Coast of the United States presently produce commercial fisheries landings of over two billion pounds annually. These landings represent a value of almost one billion dollars—an important contribution to our economy. Further, these figures represent almost one third of all commercial fisheries poundage landed on U.S. shores and one half of the value of the commercial fisheries resources landed on those shores.

We at the foundations are endeavoring to build a solid base of support with industry. Since May, membership in the West Coast Fisheries Development Foundation has gone from 55 firms to 98 and is continuing to climb. More proposals for funding are being submitted to the Foundation now than ever before; quality appears much higher, and the grant candidates are demonstrating increased diversity of thought. The Alaska Fisheries Development Foundation has identified pollock as the one and only target species for development (and rightly so—it is an enormous resource) and are organizing a broad-based project to wed this species to domestic production and markets.

We are particularly pleased by the recent (December 1982) announced "Major Goals of the U.S. Department of Commerce." Among the goals are the following:

Promote new commercial uses of marine resources by U.S. industry;

Increase by 40 percent the domestic fisheries contribution to the GNP by 1990;

Provide balanced management of the marine environment.

We are concerned that the proposed budget does not, in reality, reflect the stated goals of the Department of Commerce.

An alarming aspect of the current budgetary process is evident from the structural changes proposed within the budget categories. The best example of this may be gleaned from the recent budget proposal of the Northwest and Alaska Fisheries Center of the National Marine Fisheries Service. The National Marine Fisheries Service proposes the near-elimination of the Utilization Research Division and other programs relevant to commercial fisheries development. At the same time, only a ten percent reduction is proposed for the marine mammal program. We have had a continuing fight with the National Marine Fisheries Service on this issue of eliminating the Utilization Research Division. The work of the Division represents a significant contribution to fisheries development efforts on the West Coast and in Alaska.

The proposed elimination of Sea Grant funds is also a very troubling aspect of the proposed budget. Successful development requires both a research component and a communications component. Sea Grant is charged with this dual responsibility. First, much of the ongoing technological development so vital to any development process takes place at Sea Grant institutions. Second, this and much other information is disseminated to the commercial fishing industry through the activities of Sea Grant extension programs and their agents. I don't recall seeing any mention of the Agriculture Extension Service being cut, let alone eliminated. But here is the same concept—in the marine sector—slated for termination.

A major element in the domestic and international expansion of any class of food products is the need for consumer reassurance and education. Reassurance of quality and consistent standards can only come from continued research in the development of such quality and production standards. Yet both the product quality programs and the fisheries development programs (where educational efforts are initiated) are slated for severe budget reductions.

We at the development foundations work more closely than any industry group with the National Marine Fisheries Service regional fisheries development personnel. A symbiotic relationship exists; we share our talent and expertise in a number of areas each year. I will admit that a portion of the industry sometimes questions what the National Marine Fisheries Service is doing in both utilization research and fisheries development, but industry is generally reacting from the standpoint of ignorance. National Marine Fisheries Service entities could do a better job of tooting their own horn. The Northwest Center is in fact doing this with a newly-formed industry advisory team.

The partnership between the foundations, National Marine Fisheries Service regional and national development personnel, and the National Fisheries Institute has built a dynamic marketing promotion and a positive image for fish through the Catch America campaign. We are at a point now where sales are starting to respond significantly; the consumer has caught on to the fact that fish is a great nutritional value. It would be an absolute crime to destroy the momentum we have established.

The generic marketing program serves two functions:

It helps maintain and enhance markets for established seafood products. All other food groups have this mechanism working for them.

It enables obscure and underutilized species to be focused upon and highlighted. The quickest and most effective way to establish a new fishery is to develop a market for it.

In addition, we are facing the specter of a $40 million Canadian seafood marketing blitz on the U.S. market in the next couple of years. Now is not the time to retreat.

It is to Bill Gordon's credit that the national market development program is working so well—he organized the National Steering Committee which now coordinates and oversees these activities.

The S-K funds obviously are the mainstay of these efforts, and it is imperative that they continue to be available to the National Marine Fisheries Service and the industry. Reversion of these funds to the general revenue category, as some in the administration would wish, is unthinkable.

At the present time this Foundation is pursuing the development of squid resources on the West Coast. It might be worthwhile to identify some of the efforts expended in the development of a resource—which is considered by some people to be of major significance to the fishing industry and the United States—and some of the possible problems facing the development process.

Initially, it is important to have some idea of the magnitude of the resource you plan to develop. This is only possible in the case of the squid resource by seeking the opinions of commercial fishermen. The National Marine Fisheries Service has not been able to allocate resources for assessment of this biomass (no information was available for the shrimp resources when they were developed nor for the scallop resources when they were first exploited). At the present time we believe that the squid resources are significant and that they represent a major benefit for the commercial fishing industry in Alaska and the West Coast states. Fishing technology, product design, consumer testing, and domestic and foreign market analysis will be a joint effort of Sea Grant, the National Marine Fisheries Service Development and Utilization Research Divisions, and the commercial fishing industry with this Foundation as the coordinating link. The first step was taken last month with a highly-acclaimed Squid Symposium held in Newport, Oregon.

We at the Foundation are very excited about the potential for this fisheries development effort. However, we also recognize the importance of each of the elements contributing to this development process, and we are concerned about significant reductions in the efforts of any one of these contributors.

Whether we talk of squid and whiting off the West Coast or pollock in Alaska, proposed cuts in other line items to the following areas also jeopardize an integrated development approach:

Support for fisheries management councils;
Habitat analysis;
Enforcement and surveillance.

In addition, although the direct efforts of the Foundation do not concern themselves with the salmon resource, many of our member firms produce and market salmon as part of their product mix. Many fishermen take salmon as a part of their yearly catch. There is real concern from these people that proposed cuts in salmon research and management programs will undo the fragile support mechanism that keeps these fisheries viable and provides hope for the future.

In summary, it is our view that the budget of all fisheries programs under the Department of Commerce should reflect internal goals and objectives. This budget does not. Nor does it serve the interests of the government-industry partnership now in place.

Thank you for this opportunity to present my views to the Committee. I am confident that the budgetary process will allow a rational and consistent commercial fisheries development program to evolve and prosper.

ADDENDUM

(Submitted by Susumu Ono, Chairman/President, Pacific Tuna Development Foundation)

The Pacific Tuna Development Foundation uses Saltonstall-Kennedy funds and cash contributions from the United States tuna industry to sponsor fisheries development projects in United States-related islands in the Pacific as authorized by the Central, Western and South Pacific Fisheries Development Act. The Governors of the islands and key United States tuna industry leaders sit on the Board of Directors. The Board funds projects that range in nature from reseeding the reefs of Palau with juvenile trochus to training Samoan fishermen to fresh fish marketing techniques. The Board has found that the United States-related Pacific islands are very special because most of them meet the United Nations definition of isolated, underdeveloped island areas.

Project costs are unusually high in these islands because of air travel over long distances, high shipping cost and costs of communication. Basic infrastructure—shoreside facilities such as ice houses, boat ramps, and marine railroads—required for fisheries development is often lacking. We are pleased that the recently published Saltonstall-Kennedy regulations recognize the lack of infrastructure in the Pacific island areas and will allow us in the future to use funds for "associated infrastructure" as well as for the fisheries development projects themselves. Because the fisheries resources of the islands are vast, the money spent in accessing them will have enormous returns.

Ironically, the islanders currently depend on imports for most of the fish they consume. So investments in fisheries development and associated infrastructure in the islands will reduce the islanders' dependence on imported fish dramatically. But the cost of developing these resources in these far-flung and underdeveloped islands is high.

We have authorization under the Central, Western and South Pacific Fisheries development Act for $5 million a year, but we have had no appropriations under this Act. We have annual requests for $5 million worth of projects, but last year we received only $911,750 in Saltonstall-Kennedy funds. This is why the Governors of the Pacific islands and the United States tuna industry support increasing, not decreasing, the Saltonstall-Kennedy funds made available to private foundations such as the Pacific Tuna Developement Foundation. We want to continue our nine-year mission of fisheries development in the Pacific and get on with important projects that haven't been implemented due to lack of funds.

Senator TRIBLE. Thank you, Mr. Granger.

Mr. Anderson.

Mr. ANDERSON. Thank you, Mr. Chairman. I can remember a few years back when I was a resident of Williamsburg, Va. and you were a freshman Congressman, that you joined the Merchant Marine and Fisheries Committee and annually came to the Virginia Seafood Council. In those days you had the same expression of support for fisheries matters as you obviously have today in this committee.

Senator TRIBLE. Let me just interject by saying that I am pleased we can both gather in the U.S. Senate today.

Mr. ANDERSON. I was going to offer you my congratulations for moving a step up. I still have some Trible for Congress bumper stickers in my daughter's collection. I'll have to dispose of those.

Senator TRIBLE. Hold on to those. You know, I am the only person that you know that got a promotion and along with it, a $10,000 pay cut. Senators make less than Representatives these days but, in spite of the fact that I am working harder for less pay, I am pleased to be here.

Mr. ANDERSON. Well, if there is such a thing as tit for tat, we'll see what we can do.

I do appreciate your support, the support of the entire committee, as well as the Congress, because it seems that the Congress, not the administration, has provided the traditional support to the National Marine Fisheries Service and its budget, particularly over the past few years. In my testimony, as well as Pete's testimony, I think we have addressed that, as have other Members that have testified before you this morning.

I would only want to make one additional comment, and that is, whereas we have talked about habitat, fisheries development, fisheries research and many of the other issues that come before you, there are many areas in which we, as an industry, cannot do. I would point out consumer product safety, information services, many of the things in habitat research, as example.

In these regards, even if the industry were called upon to accept a greater share of the responsibility in certain areas, it is beyond the capability of industry, or even local forms of government, or regional or State forms of government, to respond, and consequently there are many opportunities that still remain in the domain of the National Marine Fisheries Service.

These cuts, the cuts that have already been described this morning, I think adequately describe our concern. We feel that the budget that is proposed is wholly inadequate. It does not allow the agency to fulfill its tasks and it will severely hamper fisheries development, fisheries management, fisheries research, et cetera.

We also feel that any form of development is going to be very heavily dependent upon Government programs that fall into these other areas. You in your State of Virginia have a very significant Wetlands Protective Act. I live now in the State of Florida. We do not enjoy that kind of protection. So habitat protection for both the recreational and the commercial sector is very, very important. We see many areas, right now, within the administration, beyond those described here in the National Marine Fisheries Service, that challenge our ability to basically protect habitat.

These across-the-board cuts that are proposed today, I think, should be solely and sincerely rejected. We hope that you would, in your deliberations, look at the base for last year as a starting point for discussions, and with that, I will close.

I would just want to say, also in conclusion, that the efforts we are involved with in the fisheries development foundations are somewhat similar to the council's, in the sense that we are indeed a relatively new boy on the block. The Mid-Atlantic Foundation, in which you are represented, as well as the New England Foundation, we are basically trying to accept more and more of the responsibility for fisheries development through the industry.

We will continue to do that, but we would simply like to have enough breathing room so that we can take on the challenges of domestic and export marketing and many of those other areas that we do feel that the industry can play an important role. We are simply asking for your consideration and your timeliness in giving us the chance to accept those challenges that are before us right now, and let us get on with the work.

[The statement follows:]

STATEMENT OF ROGER D. ANDERSON, EXECUTIVE DIRECTOR, GULF AND SOUTH ATLANTIC FISHERIES DEVELOPMENT FOUNDATION, INC.

Good morning. My name is Roger D. Anderson. I am Executive Director of the Gulf and South Atlantic Fisheries Development Foundation, Inc. (the "Foundation"). On behalf of the Foundation's Trustees and members, I want to express my appreciation for the opportunity to appear before the Committee today, at the invitation of the Chairman, to present the Foundation's views with respect to the Administration's proposed budget for fiscal year 1984 for the National Marine Fisheries Service ("NMFS").

Before turning to the substance of my testimony, I should say a word about the Foundation. The Foundation is a non-profit research and development corporation, organized to promote the commercial development of the fisheries in the Gulf of

Mexico and the South Atlantic ocean from Texas to Virginia.[1] The Foundation is directed by a Board of Trustees, composed of industry representatives from throughout the Southeast. We work closely with government, academic and private organizations to conduct activities of direct interest to the commercial fishing industry. Historical support for our activities has come from the Coastal Plains Regional Commission, Economic Development Administration, International Trade Administration, National Marine Fisheries Service, individual states in the Southeast and private business. Over three hundred commercial fishing organizations/companies, marine suppliers and associated industries have participated in our programs.

In my testimony this morning, I want to focus particularly on the proposed NMFS budget as it would affect fishery development efforts in the South Atlantic and the Gulf. In so doing, however, I want to emphasize that "development" per se cannot be separated from other important elements of NMFS programs, including research, management and habitat protection programs, as well as those other programs within the agency, though often unrecognized, that provide the scientific, economic and statistical information so important to understanding one of our nation's most important renewable resources. All these components of the agency's operation are fundamentally interlinked, and weakening one necessarily has an adverse impact on the others. Adequate development, in other words, is impossible without meaningful research, wise management and a continued high level of effort to protect fisheries habitat.

Briefly put, the proposed NMFS budget is wholly inadequate to the tasks the agency must perform, and, if adopted, will severely hamper fisheries development. Indeed, it can only be considered ironic that, while the industry is moving forward to develop many of the historically underutilized resources of the Fishery Conservation Zone (the "FCZ"), the necessary support activities performed by the government are scheduled for termination or reduction to the point of ineffectiveness. This hardly seems consistent with the Administration's policies favoring economic development and enhanced use of our renewable resources.

In recent years, we've begun to build a better partnership between industry and government. As a result, real progress is being made in strengthening the position of the U.S. industry. Further, per capita seafood consumption is up, a reflection of the nation's interest in nutrition and health. And, particularly in the Southeast, we're expanding our export activities, utilizing finfish stocks which have not been historically harvested. These efforts not only reduce the fisheries foreign trade deficit, which still exceeds $2 billion annually, but create a stronger economic base for the industry. We must ensure that the domestic industry can continue to seize upon these growth opportunities.

If the partnership we have begun to build is destroyed, as I believe it would be by adopting these proposals, development efforts would be stymied. The simple fact is that there are functions which only the federal government can properly carry out. Whether it be in the area of consumer safety, habitat research, information services, management or resource surveys, the government must be allowed to conduct its important work. If Congress does not act on this fundamental understanding, then I am afraid we will have indeed compromised the future growth of the industry.

With these thoughts in mind, let me now turn to the specifics of the proposed fiscal year 1984 NMFS budget, concentrating on the NMFS development, research, management and habitat protection programs:

I. DEVELOPMENT PROGRAMS

Unquestionably, substantial progress has been made over the past several years to promote the development of the U.S. fishing industry. But there is still much to be done. In the Southeast, there is an enormous potential for growth. If only one sixth of the underutilized resources of the Gulf could be harvested, this could generate revenues (ex vessel) of $150,000,000 per year and create 11,000 jobs. But if some of this development potential is going to be realized, continued NMFS services (informational, analytical and financial) are of critical importance.

The Saltonstall/Kennedy ("S/K") program, a program which the proposed budget would eliminate entirely, is a case in point. In the Southeast, for example, we have been able to accomplish a great deal through the S/K program. The Foundation has coordinated participation in trade missions, fairs and related export activities, as well as supported projects which promote the consumption of domestic seafood through marketing and consumer education efforts. We have put together a set of projects designed to assemble and disseminate information on underutilized demersal and pelagic stocks which offer unique potential for commercial development. We have attempted to counter the unique handling and storage problems created by the small size and oily nature of many finfish species found in the warm waters of the Gulf and South Atlantic, species with excellent potential in foreign markets. Additionally, we have continued to address the potential of shrimp bycatch utilization, particularly handling and processing aspects. The list could readily be extended. The point, however, is that S/K in the Southeast is directly and integrally related to the full utilization of the fishery resources of the region and indeed essential to the continued growth of the industry.

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[1] The Foundation's address and telephone number are: Lincoln Center, Suite 571, 5401 West Kennedy Boulevard, Tampa, Florida 33609; (813) 870-3390.

Development, of course, is much more than S/K. NMFS has a variety of programs which are of real importance to the fishing industry. Unfortunately, the proposed budget treats them all badly. Merchant Marine Act Title XI loan guarantees, for example, have historically been important for vessels and, in the coming year, we had hoped to see the first application of this program to shoreside facilities. In fiscal year 1982, the Southeast Regional Office of NMFS handled 47 loan cases, with a total value of $9,000,000. But under the Administration's proposals, there would be a moratorium on all loan guarantees under the Title XI program in fiscal year 1984. New shoreside development, in particular, would thus be impeded.

At the same time, important industry information services are proposed to be cut by $3,000,000. This means that data collection activities will be curtailed, as will economic analyses. The Market News report, we understand, is likely to be eliminated. The elimination or reduction of such programs, which often provide critical information for both development and management efforts, will make the task of the industry in realizing its full potential all the more difficult.

Finally, as the Committee is well aware, economic development programs are hard hit by the proposed budget. Indeed, direct fishery development activities will be cut almost in half with, for example, fisheries development research and services programs cut by 45 positions and $2.3 million and quality safety and consumer services reduced by 89 positions and $3.4 million. These activities have a direct bearing on the growth of the industry. As they are cut, there will inevitably be corollary impacts on growth.

II. RESEARCH

To say that a continued high level of research efforts is integral to a sound development program is an understatement. For development efforts to be successful, the industry must know what resources are out there, where they can be found, and whether they can be exploited efficiently. The proposed NMFS budget reductions will sharply limit our ability to get the knowledge we need to move forward with realistic development initiatives.

One needs only to look at the overall number of sea days to get a perspective on the problem. In fiscal year 1983, it is projected that the NOAA fleet will have 1,746 sea days for research. Under the proposed budget, only an estimated 774 sea days of research ship support is planned. In other words, there is a greater than 60 percent reduction in at-sea research. This translates, as far as the Southeast is concerned, into curtailment, for example, of a number of critical resource surveys. As we understand it, the summer SEAMAP shelf survey in the northern Gulf of Mexico and the spring SEAMAP shelf survey would be canceled, as would the pelagic species mid-water trawl survey in the northern Gulf of Mexico. Surveys will focus only on "highest priority" species, i.e., developed species. The effect of the curtailment of this survey work will be that we in the Southeast will not have the information with respect to underutilized species necessary to shift efforts away from traditional species.

Not only will information be lacking, but the kind of improvements in the efficiency of the industry, which NMFS has sought to provide in the past, will be greatly diminished. For example, research relating to the use of satelites and remote sensing for fisheries forecasting promises to be of real benefit to the creation of an efficient industry. And the development of gear, such as the turtle excluder trawl, which might currently be described as being in the "Model T" phase, can make real differences in the productivity of the industry, and at the same time protect turtles and other unnecessary catch. Unfortunately, the NMFS budget proposals, which would include closure of the Bay St. Louis laboratory, where much advanced technology work is carried out, drastically curtail or terminate these programs.

Finally, a certain amount of the research effort is directed at expansion of existing, developed fisheries. We need to know, for example, what the effects of the

Texas closure under the shrimp FMP are, and whether that closure hinders or promotes development efforts. But, sadly, research such as this is likewise being canceled under NMFS proposals.

In short, the cuts in the NMFS research budget run directly counter to our development goals.

III. MANAGEMENT

Wise management of fishery resources is yet another ingredient which is critical for development. Management plans can provide a framework which ensures reasonable and sound development. If the Regional Fishery Management Councils and NMFS are disabled from carrying out their management functions, the necessary framework simply will not be established. In this regard, two aspects of the proposed budget are important:

First, the budget eliminates or drastically reduces many of the programs which produce information used in the management process. I noted earlier that resource surveys are severely impacted. In addition, a wide variety of other informational programs will be affected. For example, menhaden research, important for the management of this interjurisdictional fishery, will be sharply curtailed at the Beaufort Laboratory. Moreover, a variety of vital data collection programs for the Southeast will be terminated entirely. As described by NMFS, these include:

Collection of shrimp, billfish, coastal pelagics and menhaden bio-profiles/catch data;

Sampling the species composition of commerical reef fish landings;

Catch and effort data on the stone crab, spiny lobster, Atlantic bluefin tuna, king mackerel, and offshore fish traps; and

The recently developed state/federal progam to collect fishery statistics.

This impact of these reductions, in NMFS words, are as follows:

The data series that is being developed on marine recreational fisheries will be interrupted and NMFS and the Councils will not be able to monitor the fisheries with a high incidence of recreational fishing.

Analysis of fishing-related social and economic issues will be impaired.

Inability to implement a quota on the king and spanish mackerel fisheries.

Insufficient resources to monitor the stone crab, spiny lobster and snapper grouper reef fish FMPs.

Inability to monitor the billfish and swordfish populations.

U.S. commitments to the International Commission for the Conservation of Atlantic Tunas will not be met. Population estimates for bluefish tuna will not be updated with current years catch data.

Stated boldly, the management capability as regards key fisheries, a capability essential to their further development, will be crippled. This situation is flatly unacceptable.

Second, the Regional Fishery Management Councils themselves would be reduced directly. The NMFS proposal would cut funding by $4.3 million for all the Councils. This would mean reduction of council staff, fewer meetings and no new management plans. Indeed, the basic management capability of the Councils would be virtually destroyed. If one wished to terminate the system established by the Magnuson Fishery Conservation and Management Act, a system meant to involve regional interests and lead to full utilization of the nation's fishery resources, I could not imagine a better approach, but it is also an approach which runs wholly contrary to the will of Congress and the interests of the U.S. fishing industry.

IV. HABITAT PROTECTION

Finally, something must be said with respect to the budget's approach to habitat protection. Maintenance of productive fisheries habitat is essential to the growth of the commercial industry in the Southeast, as well as the nation. Over ninety percent of the commercial resources in the Southeast region are estuarine dependent. If there is a degradation of habitat, not only will there be no development, but there is likely to be a decline in the overall productivity of Gulf and South Atlantic fisheries.

NMFS programs are critical in protecting needed fisheries habitat. If NMFS does not have the capability to carry out its commenting functions under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, and does not have the scientific research to support that commenting process, serious habitat degradation is an inevitability. Yet the proposed budget calls for enormous reductions, wiping out more than 50 percent (nationwide) of the agency's habitat protection programs and impeding, among other things, such important studies for the

Southeast as those relating to the effect of wetland loss on fishery productivity. These cuts, if accepted, can only hurt the development of the U.S. fishing industry. We need a vigorous advocate for habitat, and only the federal government has the research capability necessary to support a meaningful habitat protection program.

V. CONCLUSION

In concluding, I think it is wise to understand the myths and assumptions embodied in the Administration's budget proposals for NMFS. Several are particularly noteworthy:

1. The Administration suggests that, in a variety of areas, state and local governments and the industry itself can pick up the programs which NMFS abandons. We all know, however, that this is simply not going to be the case. States and local communities are under severe budget constraints and the U.S. fishing industry is neither so wealthy nor so organized as to be able to take over informational developmental and research functions which in the past have been carried out by the federal government.
2. Even if the states, local governments and private industry are not expected to take over these programs, it is sometimes suggested that other federal programs will make up the slack. For example, the Administration has indicated that under federally-approved coastal zone management programs the states should bear the primary responsibility for protecting the coastal zone. The problem with this suggestion is that the Administration has also proposed zero funding for these coastal programs, and their very survival is in doubt.
3. The Administration suggests that certain problems are really more properly the problems of the states, i.e., estuarine productivity, because they involve waters in areas over which the states have exclusive jurisdiction. The problem with this approach, as we all know, is that fisheries do not respect political boundaries and what happens in the nearshore ecosystems and state-controlled estuarine areas is critical for the fishery which takes place in the Fishery Conservation Zone.
4. Finally, the Administration suggests that, despite all these cuts, it will maintain a "core capability" which will allow it to provide needed services to the industry. The question, however, is whether this "core capability" can be found where it is needed. It is far from clear, for example, if the reductions in development programs will leave any developmental capability whatsoever in the Southeast region. Yet, it is essential that there be knowledgeable individuals, at the regional level, to which local fishermen have access, if the development capability is to be meaningful. A few bureaucrats in Washington worrying about "national" issues will be of little direct help to the industry.

In summation, the effect of the proposed budget cuts would not be to create a leaner, more efficient agency or to create a more sensible allocation of developmental responsibility among the federal government, state/local governments and the industry. Rather, it would be to gut the agency and to scuttle development. Adoption of these budget proposals would mean that the progress of the last several years would not be sustained and that our past successes would be jeopardized. I urge the Committee, therefore, to reject the Administration's proposals and support an adequate level of funding for NMFS programs, at least at the fiscal year 1984 base level.

Thank you for your historical wisdom in this area and thank you for the opportunity to visit with you today. I would be happy to answer any questions you may have.

Senator **Trible**. I thank you very much, both of you, for your testimony here today, and Mr. Anderson, especially for your kind words. I think your testimony reinforces that of prior witnesses, underscores the importance of our fisheries programs, and an adequate level of Federal support.

I have a vote, as you may have guessed, on the jobs bill, so I want to bring this hearing to a close; but I don't want to do so without giving each of you an opportunity to give us some examples of how the work of the various foundations has led to concrete benefits for the fishing industry. I am thinking specifically of the development of new fisheries and new markets.

Mr. **Anderson**. Could we submit that for the record?

Senator TRIBLE. Would you do that for me? I think that would be an important part of a complete record and would reinforce your testimony.

[The following information was subsequently received for the record:]

SELECTED ACCOMPLISHMENTS OVER PAST 2 YEARS OF THE REGIONAL FISHERIES DEVELOPMENT FOUNDATIONS

ALASKA FISHERIES DEVELOPMENT FOUNDATION

Pollock industry development program

AFDF's most significant accomplishment has been the development of a new methodology for stimulating growth of the seafood industry. This new approach is embodied in the "Pollock Industry Development Program" begun recently with a pilot project.

The key to the new approach is that it relies on the profit motive of the private sector, forging new business relationships between the U.S. food industry and Alaska's seafood industry that will result in development of new markets and new products.

The new methodology for fisheries development has provoked such a positive response from so many sectors of private industry that the Foundation considers it a major achievement. As a corollary to the integrated nature of the new program, the Foundation's membership and industry participation network has diversified to include food companies, financial institutions, and suppliers of goods and services.

Model white fish processing facility

The Model White Fish Processing Facility project being conducted by the Alaska Foundation with subcontractor Trident Seafood Corporation was initiated in January 1982. The $1.7 million in federal S-K funds invested in the project will carry through June 1984. This one facility has not only generated a tremendous wealth of technical and economic information for use in business planning, but also has added, since June 1982, 11 million pounds of Pacific cod to the 1982 domestic catch, 18 million pounds to the landings of first quarter 1983, and over 6 million pounds of wet salted split cod to U.S. seafood exports.

Since shore-based processing capacity is the most obvious missing link in the development of Alaska's underutilized fisheries, this plan represents a true pioneering effort. The experiences gained by Trident Seafoods at their remote Akutan Island facility are made accessible via the Foundation's employment of an on-site observer and its compilation, analysis and communication of information for its seafood industry constituents.

Utilization of fish waste

Another pioneering venture in Alaska's seafood industry is represented by the groundfish catcher-processor "Arctic Trawler". The Alaska Foundation, with subcontractor Trans-Pacific International Industries (owner of "Arctic Trawler"), has been engaged for a year in a project to identify economically viable uses for portions of Pacific cod and pollock that are normally discarded by such a space-limited processing operation. With assistance from private firms and the National Marine Fisheries Service, several new product concepts have been produced and tested, with production input factors monitored and analyzed. The results of this research will allow greater utilization of the entire fish, which is essential to profitability in processing such low-value species, and are expected to lead to commercial introduction of at least one new product in domestic markets.

Crabber conversion

Like some other regions of the U.S., Alaska has the problem of overcapitalization, or underutilized capacity, in some sectors of its fishing fleet. Severe problems of this nature are being experienced by the crab fleet, so a Foundation project was aimed at examining the economics of adapting a crabber to longline and process Pacific cod. This experimental venture was not an economic success for the vessel owners but did generate significant technical and economic data to guide similar enterprises.

GULF & SOUTH ATLANTIC FISHERIES DEVELOPMENT FOUNDATION

Export market expansion

This activity has been designed to expand export marketing opportunities throughout the Southeast. With major markets developing in Africa, the Far East, Europe, the Middle East and South America, the coordination of foreign marketing assistance has proven to be an appropriate and functional activity between government and industry. As a result, the industry has participated in foreign trade missions, fairs and related export activities. Industry participants cover the costs of their travel and expenses, as well as provide most of the samples used in promotions. The Foundation engages marketing specialists to coordinate these activities, as well as schedule participation. Foreign market investigations have been cooperatively scheduled with the Foreign Agricultural Service of the Department of Agriculture, Southern United States Trade Association and United States Department of Commerce.

This work has been cooperatively pursued with the regional and national offices of the National Marine Fisheries Service and has yielded the following:

36 export promotions in the past five years which have meant an increase in exports of over 30 million pounds per year since 1978; and

Over 40 firms now exporting traditional and nontraditional fishery resources of the Southeast. This reflects a tripling of export participation since the program was initiated.

Resource assessment and exploratory fishing

This program has been established to assembled and disseminate information on underutilized demersal and pelagic stocks. Though scientists have commented on the unique potential for commercial development, the lack of historical interest has hindered even the most basic data collections. In recognizing this problem, investigators have been working with the Foundation to define the character of these stocks. Of particular interest are the herrings, squid, deepwater crabs, et al., species that have only been nominally harvested. Because of the projected magnitude of these stocks, and the sales potential already identified, the interest in accumulating and assessing the existing data is acute.

Besides reviewing the status of these species, attention has been devoted to the harvest potential of blue runners, bonito, jack crevalles and other migratory fish. Because of export potentials, these fish have been test-harvested using modified drum seines, pair trawls, deepwater purse seines, etc. Six to ten fishing vessels, with support aircraft, are continually involved.

As a result of such efforts, major new fisheries have been established for coastal herrings and migratory pelagics, with new fisheries opening on squid, red crabs and shark. Approximately two billion pounds of new annual harvest is reflected in these efforts.

New product development

The harvesting of a wide variety of new species has posed a complex set of problems for the processing sector. While many species are being frozen and exported in the round, others require special handling as well as custom processing. Beyond directed harvests, this work has emphasized selected aspects of shrimp by-catch utilization, particularly handling and processing, but more particularly, custom product formulations.

While a number of seafood products are well represented in the world marketplace, many items are only regionally understood. This is a particular problem with many Southeastern species. As a result, this project has endeavored to reduce species-by-species introductions, handling much of the work by implementing broadscale testing. Specific examples of this work include product development and testing with fish flakes, surimi and fish oils. In each of these instances, a variety of species have been proposed for future testing, primarily for export or domestic sale in ethnic markets.

As a result of this work, at least six new companies have been established, each producing products developed specifically through the work described above.

Gear testing and demonstrations

Because of increased harvest interest in black drum and other "rough fish", a number of new gear-types have been introduced into the Northern Gulf. However, because of the high conversion costs, the experimental nature and overall newness, much of this work has been both expensive and risky. To offset these concerns, and maximize data collection, cooperative fishing activities have been initiated. To date this work has included drum seining, deepwater purse seining, bottom longlining and at least a dozen other gear technology introductions.

Since the initation of this effort, at least 100 vessels have left the over-capitalized shrimp fleet, with three other custom built vessels entering the new fisheries. Expansion of swordfishing, snapper-grouper, migratory pelagic and the coastal herring fisheries, all relate to this work. Over 150 vessels have taken part in organized Foundation demonstration/gear-testing activities.

Nontraditional fisheries promotions

This work has focused on the promotion of domestic seafood resources through marketing and consumer education efforts. The Foundation enlists the support of federal and state agencies, along with academic institutions. In addition, the Foundation has generated support from the commercial fishing industry throughout the Southeast. These agencies, institutions and industries provide expertise, time and sample products.

The promotion of selected fishery resources and follow-up efforts has involved:

Materials development: food photographs, with accompanying recipes and fact sheets, recipe leaflets and posters have been produced and distributed;

Product samples: funds have been provided to purchase and transport selected products for demonstrations with consumer groups, professional food educators, distributors, restaurant chain personnel, supermarket chain executives and others directly involved in the merchandising of seafood products; and

Trade and media contacts: this involves travel by marketing personnel to distribute educational materials to newspaper food editors; to conduct live and taped radio and television demonstrations; to distribute product samples and discuss same with wholesalers and distributors; and to visit restaurant and supermarket chain executives to enlist their support for product introduction.

Over a five year period, this program has generated over eight million dollars in complimentary media support, representing over 2,000 television presentations, thousands of inches of newspaper coverage, plus over 10 million pieces of promotional material distributed.

MID-ATLANTIC FISHERIES DEVELOPMENT FOUNDATION

Conversion of blue crab raw materials into new improved products

This project addressed the acute problem of crab waste in the Chesapeake Bay area, and combined it with a fuller utilization of the product. Results successfully indicated to industry that greater usable meat yields could be achieved by placing the "picked" shell through a deboning machine. The resulting product could be formulated into several new products. Industry has already implemented the results, which also reduce waste generated from processing, but using "more" of the raw material than before. A final report is available to interested industry members.

Gear technology transfer demonstration

During the first year of operation, this project was very successful in getting fishermen to try and subsequently implement new harvesting techniques, namely pair trawling for squid, butterfish and others, and have not only increased their catches and productivity but reduced fuel costs. More recently, the project was very successful in demonstrating squid jigging to fishermen. Not only have fishermen been using the machines, but fishermen throughout the region are "waiting in line" to put the machines on their boats.

Economic prospectus and 5-year development plan

Completed in mid-fall 1982, this project was one of the most significant contributions for the betterment of the industry that the S–K program will have produced for the Mid-Atlantic region. As a briefing document, it is to be used to educate the financial community about the development potential of the fishing industry in this region—on their level, with straightforward economics. Additionally, it will be a planning document for the entire Mid-Atlantic region to follow in developing the fishing industry effectively and realistically.

Domestic marketing and consumer education

Between 1980 and mid-1982, the Foundation has conducted more than 25 Educational Seminars for teachers, home economists, extension agents, and retail meat managers; participated in more than 50 TV and radio programs and seafood demonstrations; received more than a half-million dollars worth of free print publicity; conducted seafood products workshops for state home economists and marketing specialists; distributed more than 100,000 seafood recipe brochures with nutritional and cooking information; produced public service spots for radio stations in the Mid-Atlantic region; and developed and produced a directory of Mid-Atlantic seafood processors which has been extensively distributed throughout the Northeast region and Mid-west.

Demonstration of a quality maintenance program for fresh fish products

To conclude in mid-summer of 1983, this project will be a significant step forward to better maintain high quality of seafood products produced within the Mid-Atlantic region. At this time, the contractor has already identified several aspects of the participating plant operation that need changing so as to improve the quality of product he produces. The processor has already indicated he will make the necessary changes at his own cost. Ultimately, the project will develop a "Good Manufacturing Practice (GMP)" aimed at maintaining a 12-day shelf-life for several seafood products and include Midwest marketing.

A preliminary study to determine the feasibility of marketing spiny dogfish

This project successfully marketed over 10,000 pounds of shark on the retail level during a 5-6 week period. Several other independent chains over and above those that were participating also started selling shark after the project began generating results. A copy of the final report is available to interested industry members.

NEW ENGLAND FISHERIES DEVELOPMENT FOUNDATION

Onboard quality program

Upgrading the quality of domestic seafood products has been a major concern of the National Marine Fisheries Service, the General Accounting Office, and the U.S. fishing industry. The NEFDF has attacked this problem through a program that improves handling of fish on-board vessels, upgrades quality control procedures in plants, and delivers high quality fish to retail and foodservice buyers.

The universal impediment to higher quality is that the independent fishermen in our industry require an incentive or economic reward in order to work harder taking care of their fish. If the fishermen only receive the average price because of supply and demand, they have no incentive to improve quality.

The Foundation has succeeded in introducing bleeding and boxing on board vessels in New Bedford, MA and has succeeded in getting a market premium for high quality fish. In 1982 over 500,000 pounds of bled fish and 250,000 pounds of boxed fish were sold at from 7 to 12 cents over average market price. In 1983, this program is expanding to additional New England ports, including Boston, Gloucester, and Rockford, ME.

This is the first fish to be landed in European type plastic boxes on a commercial scale in the United States. Through this program, our industry is adopting the measures which have allowed our international competitors, such as Iceland and Norway, to maintain a reputation for the highest quality fish.

Seafood 1983

Trade shows are one of the most cost-effective means for increasing the consumption of fish by bringing producers in direct contact with their customers. The NEFDF pioneered the concept of the all seafood trade show, and for the past three years has sponsored increasingly successful shows.

In 1983, the Foundation assisted U.S. producers to exhibit at seafood 1983, an international seafood trade show held in Boston with Canadian, Norwegian, and Icelandic exhibitors as well. The show provided an opportunity for U.S. producers to directly compete with their foreign competitors, and attracted over 2,000 qualified buyers.

The industry avidly supports these efforts on the part of the NEFDF. Increased sales attributable to these shows and other marketing efforts help the industry as a whole remain healthy and competitive. Because of the small size and fragmentation of the industry, few producers can afford to exhibit on their own at large national trade shows, and most need assistance to take advantage of this effective medium. The results of the Foundation's efforts are a healthier competitive position for New England producers, cost-effective sales tools, and increased seafood consumption.

International squid symposium

In August 1981 the NEFDF held the first International Squid Symposium in Boston. Nearly 200 industry, academic and government representatives from 14 countries attended. The Symposium successfully focused international attention on the determination of the U.S. industry to develop our East Coast squid resources.

The symposium effectively served to transfer knowledge about squid processing, harvesting, and handling techniques from user countries to the U.S. industry. The number of industry participants served to convince the National Marine Fisheries Service that the U.S. industry was in fact committed to expanding use of squid resources, and the conference also convincingly demonstrated the increased consumer demand, both in the United States and abroad, for squid products.

Out of this conference came a major S-K project to experiment with squid jigging, substantial interest in joint ventures, and firm commitment on the part of New England processors to pack and export more squid.

"Catch America" and "Seafood USA" marketing campaigns

The NEFDF has served as a focual point for developing interest in under-utilized species, and for promoting increased consumption of all domestic seafood. Through these marketing campaigns, the Foundation has assisted retailers and foodservice suppliers in target inland markets to become more familiar with fish and seafood, has assisted in media and publicity related to seafood, and has been able to supply food editors, supermarket personnel, and foodservice companies with timely and effective seafood information, point of sale material, and training.

Participation in these campaigns has been closely coordinated with the National Marketing Coordinating Committee of the National Marine Fisheries Service and the Regional Development Foundations.

Foundation activities in target markets have resulted in increased sales opportunities for domestic seafood, and have helped New England suppliers to reach new markets. Such activity allows consumers to get a broader variety of wholesome, nutritious fish and seafood products from all regions of the country.

Red hake and whiting surimi tests

Red Hake and whiting are two New England species which have been traditionally caught for industrial use. Red Hake in particular has had very limited food use, because it deteriorates rapidly in the fresh state and is not suitable for long term frozen storage. New England has long looked to minced fish products to provide potential avenues of utilization for these species. However, due to the low prices of minced blocks, and the storage problems of red hake, no attempts to use these species in minced products have been successful on a commercial scale.

In cooperation with the Gulf and South Atlantic Fisheries Development Foundation and North Carolina State University, the New England Foundation has tested these two species for their potential in surimi and surimi based fabricated products.

Red Hake was found to be more suitable for high grade surimi than any U.S. fish so far tested. Whiting was also found to make very good surimi. This test has opened the possibility for New England to become a major producing region for surimi, and suppliers of surimi based products, based upon our red hake and whiting resources.

The Foundation has been very encouraged by the results of these tests and will pursue every avenue to assist in the full utilization of these two promising species of fish.

PACIFIC TUNA DEVELOPMENT FOUNDATION

Tuna purse seining—Western Pacific

During the mid 1970's the U.S. tuna purse seine fleet faced multiple operational problems in traditional fishing grounds of the Eastern Pacific Ocean. These problems included spiraling costs, stagnant catch rates, 200-mile fishing limits and vessel seizures, increased foreign competition from Latin American countries, and federal restrictions on taking tuna associated with porpoise.

In 1977 the Pacific Tuna Development Foundation undertook a multi-year purse seine fishing-survey program to explore and develop new tuna fishing grounds in the Western Pacific that will continue through 1983. Each year contracted United States tuna purse seiners explore selected regions and report on concentrations of surface tuna and their vulnerability to purse seine gear, catch rates, tuna behavior, the need for modifications of gear and fishing techniques, and costs of operation.

To date the charter vessels have accounted for a catch in excess of 6,000 tons of mixed tuna and provided invaluable exposure to western Pacific tuna fishing conditions.

Encouraged by the success of PTDF's charter program, the number of United States seiners operating in the western equatorial Pacific has increased from only one in the mid-1970's to over 50 by August 1982. The 1982 catch by these vessels exceeded 70,000 tons of mixed tuna that generated a gross stock of over $70,000,000 for the U.S. tuna vessels participating in the fishery.

Pole and line fishing—Truk.

Prior to World War II, local Japanese pole and line fishermen landed up to 9,000 tons of mixed skipjack and yellowfin tuna per year at Truk in the Eastern Caroline Island group.

This fishery was not pursued by U.S. or local fishermen after the war. The new generation lacked the equipment and techniques required to redevelop the fishery. As a result the only fresh tuna available to the local population was caught by small outboard powered boats using trolling lines. The production from these small vessels was sporadic and fell far short of filling demand for tuna on the local market. Additionally the price demanded for fish was more than could be afforded by the local inhabitants of Truk.

In 1980 the PTDF funded a pole and line fishing project in an attempt to revive the pole and line tuna fishery. The project provided the use of a completely equipped local vessel and the services of an experienced fisherman to train local fishermen.

The end result of the one-year term of the project was a landed catch of 224,006 pounds of mixed yellowfin and skipjack tuna. The total catch was the largest recorded for any one-year period by a vessel manned by local island fishermen in the western Pacific area.

All tuna were sold either fresh or frozen on the local market. Prices to the public were reduced from over $1.00 per pound to a reasonable $.50 as a result of the project.

Several additional vessels have since been added to the fleet and in 1982 sufficient tuna was produced to satisfy local demand and to enable Truk to export frozen tuna to Hawaii.

Trochus reseeding for commercial exploitation—Palau

The large marine snail trochus niloticus is the object of a multi-million dollar mother of pearl industry in the Indo-Pacific region. In Palau, trochus shell exports account for more foreign exchange than any other marine resource except tuna. However, catch records indicate that the reef areas where trochus are found have been overexploited and annual yields are now 50–70 percent lower than those reported in previous decades, despite an apparent increase in fishing effort. No comprehensive management plan to protect the resource has been introduced.

A Pacific Tuna Development project to culture trochus, reseed reefs, and develop a model trochus management plan was initiated in 1981 and will continue through 1983.

To date the project has resulted in the production of 1.5 million hatchery raised juveniles, the development of significantly improved methods of induced spawning and for applying permanent tags to adult specimens, the completion of a comprehensive study of growth rates in nature based on over 1,000 recaptures, the analysis of the 1982 trochus landings by volume and by size frequency, the completion of a stock assessment survey in Koror State, Palau and the adoption of a trochus sanctuary management plan by the State Government.

Marketing and management—Guam Fishermens Cooperative

The Guam Fishermens Cooperative was formed in 1979. During its first year of operation the organization was plagued by a multitude of problems. It had no operational base or facilities to freeze excess production and operated from a temporary sales outlet in the Guam Farmers' Market. Accounting records were neglected and communications with the board of directors had broken down. Quality control, sanitation and product displays, in addition to organized marketing, were not being properly handled. Product price mark-ups were inconsistent and were adversely affecting profit margins.

In 1980 the Pacific Tuna Development Foundation funded a project to organize marketing and management an endeavor to develop a long-range plan that would include a Coop-owned freezing, storing, selling and distribution facility.

During the first-year term of the project, the Coop accounting system was changed and books were brought up to date. Quantity control guidelines were introduced which cut losses suffered from spoiled fish. Gross profit margins increased from 6 percent to 22 percent and gross sales increased from $10,000 in 1980 to $30,000 in 1981. Two successful export shipments of fresh chilled fish were made to Hawaii establishing an additional outlet for Coop production. A long range plan was developed to establish a facility to accommodate all sections of the Coop organization, and the Coop is now in the process of completing the new facility.

WEST COAST FISHERIES DEVELOPMENT FOUNDATION

Blue shark fishery

Undcer a grant from the West Coast Fisheries Development Foundation during the four-month period from mid-July through mid-November 1980, the vessel "J.J." harvested 7,980 Blue Sharks and delivered shoreside 145,855 pounds of dressed Blue Shark at an average price of $1.25 per pound. In addition, the shark fins were sold as by-products for export. The WCFDF provided marketing assistance and developed consumer information materials. The market effort was sufficient to sell all of the product by January 1981, with market interest ranging from Southern California to the Pacific Northwest and as far east as Denver.

The project established Pacific Blue Shark as an alternative fishery for the entire West Coast. The fishery is presently providing additional income for commercial fishermen with annual landings in the hundreds of thousands of pounds.

Offshore factory trawler demonstration on Pacific whiting

The Foundation funded the M/V BLUE OCEAN, a U.S. flag 162 foot factory trawler, to operate for 39 days catching and processing Pacific Whiting off the Washington coast in the summer of 1980. The primary objective was to produce frozen blocks of fillets of acceptable quality for use in the existing market.

It was amply demonstrated that whiting can be caught in sufficient quantities by this sort of operation, but in the production of blocks, both from a product quality and economic standpoint, the operation proved to be unfeasible. The project has let the West Coast processors, who asked for it in the first place, know that the venture is not worth the ink, and that serves a very useful purpose.

In addition, the project demonstrated much more favorable results in producing headed and gutted product and suggested serious developmental efforts in this direction. The industry has inedeed picked up the ball: over 2 million pounds of Pacific whiting were caught, processed and marketed in headed and gutted form in Puget Sound last year, and the effort is very close to exploiting ocean stocks as well.

The Foundation has great hopes for its bilingual promotion of this product, scheduled to take place next year in the Hispanic community of Los Angeles.

Groundfish marketing

During 1979 the market for all West Coast groundfish products collapsed. As a result, prices to the fishermen dropped by over 50 percent and processors faced excessive (and costly) levels of slow-moving frozen inventories. This, coupled with high interest rates, caused several processors to close their doors and a few fishing boat owners to lose their vessels.

A complex mix of factors caused the collapse. Perhaps the major contributor to the problem was the increased import level of subsidized Canadian groundfish. However, a limited market area, together with increased landings of fish, aggravated the problem even more. (These increased landings included the previously underutilized Widow Rockfish.) In an attempt to provide some relief for the West Coast groundfish industry, the Oregon Trawl Commission and the West Coast Fisheries Development Foundation requested and received Saltonstall-Kennedy funds to initiate a groundfish marketing program. The effect of our program and others has been to help the market assimilate this doubling of groundfish landings. Prices to fishermen have risen as a result. Foundation staff members and adjunct groups such as the Fishermen's Wives continue this consumer education and marketing program.

Squid fishery development

The Foundation at present is orchestrating a concerted effort toward orderly development of a commercial squid fishery off the Oregon and Washington coast. Fishermen and processors on the coast are being encouraged to prospect for squid. The Foundation sponsored and helped organize a Squid Symposium, held in February of this year, which we feel provides a cornerstone for development. This is what the National Fisherman had to say about it:

"Can confidence help the fishing industry develop? Most of us sneer at the thought. However, a recent gathering in coastal Oregon may have changed some people's attitudes about the effectiveness of fishery development conferences . . . For a day and a half, information flowed. Fishermen talked to brokers; processors met with folks from food service; everyone talked to each other. By the time the final panelist had answered the last question, the audience was approaching overload but still had not lost interest. The event succeeded as a true fishery-development conference, a conference in which one sector of the industry is forced to develop a better understanding of the needs of the industry is forced to develop a better understanding of the needs and difficulties facing all the others. Without conferences like these, future development could be delayed interminably."

Foundation membership recruitment

Over the first three years of its existence, the Foundation has endeavored to build an organization that encompasses all aspects of the West Coast fishing industry—harvesting, processing, distribution, and marketing—and delivers services that the idustry perceives as unique and valuable to its long-term viability. It would appear that this effort is bearing fruit: membership in the Foundation has virtually doubled in the last nine months, from 55 firms and organizations to 104 presently. This bodes very well for the long-term future of the organization and its concept.

Senator **Trible**. I thank you for being here. These are important hearings and you have contributed to their success.

Mr. **Granger**. Thank you.

Mr. **Anderson**. Thank you.

Senator **Trible**. The meeting is adjourned.

[Whereupon, at 11:50 a.m., the hearing was recessed.]

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORIZATION

ATMOSPHERIC AND SATELLITE PROGRAMS

MONDAY, MARCH 14, 1983

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, D.C.

The committee met, pursuant to notice, at 9 a.m., in room SR-253, Russell Senate Office Building, Hon. Slade Gorton presiding.

OPENING STATEMENT BY SENATOR GORTON

Senator GORTON. Welcome to the last of three hearings before the Committee on Commerce, Science, and Transportation on the National Oceanographic and Atmospheric Administration. Today we will be addressing NOAA's atmospheric and satellite programs and program support. This completes the committee's overview of the agency which began with the hearings chaired by Senator Packwood on February 28 considering NOAA's ocean and coastal programs, and a hearing on NOAA's fisheries programs, also chaired by Senator Packwood on March 10.

This is the second year the Commerce Committee has considered a comprehensive authorization for essentially all of NOAA's programs. The purpose of this initiative is to permit regular review of the research, science, regulatory efforts, and plans of this agency.

NOAA was created in 1970 to improve the Nation's understanding, management, and conservation of marine and atmospheric resources. The unprecedented growth in responsibility of NOAA requires a more deliberate, comprehensive overview of NOAA as an agency. This committee cannot responsibly authorize individual programs within NOAA without considering all of the programs of the agency.

The subject of today's hearing is NOAA's atmospheric and satellite programs which include the National Weather Service, atmospheric research and services, and NOAA's satellite systems as well as NOAA's program support. Of special concern today is the reauthorization of three specific acts; these are, first, the National Climate Program Act, second, the Weather Modification Reporting Act, and third, the National Advisory Committee on Oceans and Atmosphere Act.

Collectively, atmospheric and satellite programs account for more than half of NOAA's budget and personnel and touch the lives of every citizen. These programs allow NOAA to report and forecast the weather, provide warnings of hurricanes, tornadoes, and other severe weather phenomena, manage NOAA's environmental labs and provide assistance to farmers and hundreds of thousands of general users.

These are also excellent examples of programs for which advances in science and technology hold the promise of new, better, and less expensive services for everyone. The increasingly sophisticated use of satellite observations is providing insight about weather and atmosphere that is otherwise unavailable. Electronic data processing and new electronic management information systems hold promise of providing more users better and reliable information more quickly than ever before.

The broad-scale use and the unique view of the Earth offered by satellites began in the 1960's with the development of telecommunications and weather satellite systems. The first appropriation was made in 1961 for a national operational meteorological satellite system. The system consists today of both polar orbiting satellites and geostationary satellites.

NOAA's satellite programs provide fundamental tools for carrying on their own atmospheric and ocean programs, as well as providing information for national and international climate programs, agriculture, fisheries, mineral resources, and other weather and land applications.

The use of satellites for these purposes, combined with the use of satellites for land-remote sensing may, if adequate attention is devoted to this valuable tool, provide us with a truly global information system.

Perhaps one of the greatest obstacles in achieving this, particularly in times of tight budgets, is being able to evaluate the added knowledge obtained from satellite systems with respect to the large costs for the satellites themselves. This includes both instrument development and the information systems needed to analyze the data.

We are all aware that the President has announced his decision to transfer the Nation's civil operational land and weather remote sensing satellites to the private sector The rationale for that decision and any plans for implementation are of great interest to this committee. That there was no prior consultation is a source of concern and disappointment to this committee. Everyone can be sure that the committee will be holding hearings in the near future on the President's decision. That decision is now, however, a primary subject of today's hearing.

In examining NOAA's budget requirements, care must be taken to balance short-term budget requirements against long-term national benefits. I look forward to hearing the views of today's witnesses, the first of whom will be Mr. James W. Winchester, Associate Administrator of NOAA.

Senator Hollings has submitted a statement for the record which will be inserted at this point

[The statement follows:]

Opening Statement by Senator Hollings

Mr. Chairman, during the first two hearings on NOAA programs, a succession of outside witnesses described the regrettable outcome likely to flow from the Administration's proposed budget cuts for ocean, coastal, and fishery programs. The atmospheric and satellite programs of NOAA are likewise slated for a number of questionable cuts in fiscal year 1984. But the President's announced decision to "commercialize" NOAA satellites reminds us that the budget does not reveal all the dark plans that await the agency. For this reason everyone with an interest in the continuation of quality research and weather services that serve the entire public should keep a weather-eye on the present study of the National Weather Service and on the so-called "A-76" study of 3500 NOAA jobs. Such actions taken by an Administration with a decidedly negative attitude toward the agency are well calculated, at a minimum, to demoralize employees at every level. At worst, they may foreshadow efforts to dismantle the organization.

I do not question the merit of studying how the National Weather Service should be organized for the most efficient, cost-effective delivery of services during this time of rapidly-developing technology. Nor do I question the desirability of a balanced judgment under OMB circular A-76 whether certain governmental activities are better performed by private contractors than by Federal employees. Undertakings like these are quite consistent with good management, and I certainly hope that is what they produce at NOAA The recent satellite sale proposal, however, casts doubt on the prospect that these actions will yield sound results.

In the meantime, I look forward to the information generated by this hearing. Perhaps the Administration can tell us who in the private sector will provide affordable, useful agricultural weather services to our ailing farm community. Or maybe the second polar-orbiting meteorological satellite will be proven conclusively to be a needless redundancy. I will be surprised if we receive adequate answers to these and other questions because we have been failed repeatedly at our other hearings.

I fear that those who evaluate the funding needs of NOAA have riveted their attention on short term savings. I wonder if these number crunchers think about the lives and property that could be saved with better forecasts of weather and floods. And I wonder if they fathom the importance of understanding acid rain, of anticipating the effect of increased carbon dioxide in the atmosphere, and of grasping the full implications of man-produced gases on our stratosphere's ozone shield. I also question whether they have stopped to think about the many ways that improvements in climate and weather forecasting can produce more business revenue in the future. These are the kinds of long term considerations that seem to have been ignored when the NOAA budget was put together. I expect that the members of the House and Senate will take a longer view.

Senator GORTON. OK. Mr. Winchester.

STATEMENT OF JAMES W. WINCHESTER, ASSOCIATE ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, ACCOMPANIED BY DR. JOHN H. McELROY, AND DR. ALAN D. HECHT

Mr. WINCHESTER. Good morning, Mr. Chairman. With your permission, I would like to have Dr. Alan Hecht and Dr. John McElroy join me at the table, when Dr. McElroy shows up. He will be here momentarily.

Senator GORTON. We are pleased to have them.

Mr. WINCHESTER. Mr. Chairman, and members of the committee, I am James W. Winchester, Associate Administrator of the National Oceanic and Atmospheric Administration. I appreciate the opportunity to discuss with you NOAA's recommendations on reauthorization of the national climate program, the national weather modification reporting program, NOAA's meteorological satellite program, and the National Advisory Committee on Oceans and Atmosphere. And as I mentioned, Drs. McElroy and Hecht are with me here today and will be able to answer detailed questions that do not come up in my testimony.

Also, since the committee has been provided with about 45 pages of background material, my formal testimony and statement for the record will be short and concise. With your permission, Mr.

Chairman, I shall now briefly address each of the four program elements.

First, the national climate program. The national climate program, Public Law 95-367, was enacted by Congress in 1978 to establish a comprehensive and coordinated National Climate Program. NOAA, through the National Climate Program Office, has major responsibility to implement the act.

During these past 5 years, a program has been organized that is improving our understanding of climate processes, increasing our capability for providing useful climate information and developing an ability to anticipate and respond to climate impacts. Therefore, NOAA urges reauthorization of the program.

The reasons for recommending reauthorization are as follows: First, NOAA recognizes its responsibility to execute this program, and the National Climate Program Office is now organizationally located in the Office of the Administrator. The Director, Dr. Hecht, reports directly to the administrator. In this position, the National Climate Program Office has an important role in developing programs and setting priorities.

Second, the Interagency Climate Program Policy Board, which I chair, has been revitalized and now is directly involved in setting priorities for a multiagency climate budget. All agencies can use the guidance preferred by the Board to develop their climate budget initiatives, and they will be used by the National Climate Program Office as a standard against which progress in the program can be measured. This approach marks a very significant step in establishing procedure by which climate initiatives can be developed.

Third, there is a clear sense of direction to the intergovernment climate program. The principal objective of this program is to improve the delivery of climate services in the United States. The National Climate Program Office has funded, State and private groups over the last several years, to explore new approaches to the delivery of climate services, and this exploratory phase has given rise to the concept of regional climate centers, through which climate services can be delivered in a more focused and cost-effective manner.

Fourth, the first Experimental Climate Forecast Center established at Scripps Institution of Oceanography, in 1981 will serve as a model for additional centers now under consideration. Our approach is to link the activities of the experimental centers with the operational program of the National Weather Service which will help it to be more responsive to the needs of the user community. Other relevant climate research projects, such as the one proposed by NOAA in fiscal year 1984 called TOGA, addresses fundamental links between the atmosphere and the ocean.

Climate research is entering a very exciting new era. It is believed that variations in world climate are partly related to changes in the conditions of the oceans, but the mechanisms are not well understood. Air pressure, wind, rainfall, and temperature fluctuations in the equatorial Pacific associated with a phenomenon called the Southern Oscillation and El Nino are keys to understanding climate variability.

At the present time, an El Nino event, marked by widespread warming of tropical Pacific Ocean, is in progress. Severe rains and flooding in northern Peru and droughts in parts of Australia are related to this El Nino. Our ships and aircraft are measuring atmospheric and oceanographic parameters and our satellites are measuring temperature, rainfall and cloud movement, so this El Nino will be the best documented in history.

The unusual winter weather pattern over the United States this year was in part related to atmospheric and oceanic changes in the equatorial Pacific, which began during the summer of 1982.

The complexity of climate forecasting is evident by the wide variation of climatic forecasts that were made last fall. However, both our National Weather Service and our Experimental Climate Forecast Center at Scripps successfully predicted above normal winter temperatures for the Eastern part of the United States, based in part on analysis of the Pacific Ocean temperature and precipitation patterns.

So, the National Climate Program Office has taken a strong role in coordinating and focusing international climate activities. An example of such activity is the international satellite cloud research climatology project. The National Climate Program Office is the focal point in the United States for the development of this project which is scheduled to begin in July 1983 and extending until 1988. The project addresses one of the most important subject areas in climate modeling; how do changes in clouds affect climate and vice versa. A great deal of interagency coordination is needed to develop this program, and the mechanism of the National Climate Program Office has proven the most effective way to do it.

I should now like to briefly address the national weather modification program. We are requesting a reauthorization of $100,000 for the Weather Modification Reporting Act for 1984 and such sums as may be necessary in 1985. Completion of the Nevada, North Dakota, and Utah State-Federal programs will be carried out as mandated in the continuing resolution for fiscal year 1983. However, a decrease of $900,000 is proposed in the fiscal year 1984 budget to terminate NOAA's participation in those kinds of weather modification efforts. NOAA believes those kinds of activities should more appropriately be undertaken and funded by individual States. But cloud physics and precipitation processes will remain an essential part of NOAA's research mission.

NOAA will maintain the weather modification program established by Public Law 92-205 and represent the United States in weather modification programs of the World Meteorological Organization. But we believe that during the next few years, continued research in cloud physics and precipitation processes will be more productive than experimental weather modification projects.

I shall now turn to the meteorological satellite program. The meteorological satellites are a key source of information for our National Weather Service forecasts. This year, we have requested two enhancements; one is for implementation of a program to improve the weather forecasting and warning services through the operational use of a visible and infrared spin-scan radiometer atmospheric sounder, and with the data from our geostationary satellites we expect to make a significant improvement in weather forecasting and warning services. And two, we plan to modify the polar satellite to allow it to operate in an orbit that will provide more timely satellite data for the National Weather Service's numerical prediction model.

A third item of interest, while not a new initiative in the sense of items 1 and 2, will be the procurement of the followon series of spacecraft. That is to initiate the procurement of the next series of GOES spacecraft. There is a minimum 5-year procurement, fabrication and test cycle from contract award to launch readiness of the first spacecraft in the new series. In order to continue a two-GOES spacecraft program without a potential gap in service, a launch in 1989 is required. This new series will be the first to be launched by the Space Shuttle and will be procured by competitive solicitation.

The fiscal year 1984 budget request maintains the two-satellite configuration for GOES critical to obtaining timely images of the movement of destructive weather systems over much of the Western Hemisphere. Although the budget reflects a net increase of $9.369 million over fiscal year 1983 figures, the amount actually represents a continuation of procurements already underway.

The polar systems, part of the regular met satellite program, is funded or requested at $39.333 million for 1984. That is the total budget request. The 1984 budget request for the polar system is $4.308 million less than we had in 1983 appropriated level. This represents a decrease of $3.273 million for the nonrecurring ground system procurements, and a net decrease of $1.035 million associated with spacecraft and launch procurements.

This net decrement is comprised of one decrease of $2.035 million and one increase of $1 million. The decrease in the polar orbiter from two operating spacecraft to one spacecraft will result in a savings of $38 million in 1983, and an additional $21 million in 1984 compared to the cost of maintaining the two-polar orbiting satellite system. This change will result in total savings of $375 million over the next 10 years.

Now, our experience over the past several years has demonstrated that the likelihood of the loss of polar satellite coverage, even for a few months, is minimal and would occur only in the unlikely event of failure on launch or premature failure in orbit. The primary function of the polar orbiting satellite is atmospheric soundings for use in the National Meteorological Center prediction model. The increase of $1 million for proposed modifications of the polar orbiting satellite to allow the satellite to orbit in an equatorial crossing time, near-noon orbit, will improve the timeliness of polar sounding data from the conversion to a one-polar satellite system for 1985.

Additionally, the operational use of the VAS sensors will provide much of the sounding data and on timescales much smaller than those associated with the current polar orbiting satellite system or the Radiosonde network. In addition, the fiscal year 1984 budget request represents a $6.0 million reduction from last year's because of a program change to launch NOAA-H and NOAA-I on Atlas launch vehicles instead of the space transportation system (Shuttle).

In our Landsat operations, funded at $23.536 million, NOAA has requested that amount of money to support the management and operation of the system in 1984. The total cost of Landsat operations in 1984 is $39.536 million. The difference represents other Federal agencies' reimbursements for Landsat. NOAA expects to recover the total cost of Landsat operations from data sales to other government and nongovernment domestic and foreign users. This funding will be reflected in the budgets of the other Federal users, including the Department of Agriculture, the Department of the Interior, and the National Security Agency.

On January 31, 1983, NOAA assumed from NASA responsibility for operation of the new Landsat-D system. The funds from this request will be used to contract for management of the ground system at the Goddard Space Flight Center to reimburse the Department of the Interior's Eros Data Center at Sioux Falls, S. Dak., to pay for the Landsat data and other data services.

I shall now address the National Advisory Committee on Oceans and Atmosphere, NACOA. NOAA does not recommend reauthorization of NACOA. NACOA was established by Public Law 92-125 on August 16, 1971, and it was reestablished and modified by Public Law 95-63 on July 5, 1977. NACOA's mission is to provide advice to the Congress and to the administration on oceanic and atmospheric matters, and during the last 11 years the committee has been composed of competent members and has produced a large number of reports for the Congress and the administration.

However, many of these reports and advisory services have primarily addressed policy and management issues which were not very useful to NOAA or the Department of Commerce in the management of oceanic and atmospheric programs. Furthermore, the results of the NACOA studies have consisted of a very general overview and have not been very useful for program planning. We believe that the kind of programmatic advice we need can be provided by a variety of existing organizations such as the National Academy of Sciences, National Research Council, National Ocean Industries Association, university associations, environmental and conservation groups, private consultant firms, and various other ad hoc committees.

Mr. Chairman, this concludes my prepared testimony. My colleagues and I will be glad to answer any questions you have at this time.

Senator GORTON. Thank you, Mr. Winchester. The administration budget proposes laying up a portion of the NOAA fleet and arranging for charter vessel to do research work. Was this decision based on a result of a region-by- region analysis?

Mr. WINCHESTER. I believe the ships we are proposing to lay up are fishing research vessels, and we found that in certain portions of the country, we could charter more cheaply than we could operate the NOAA ships.

Senator GORTON. Are adequate charters available in all regions of the country?

Mr. WINCHESTER. No, sir. I was going to follow up by saying that there are certain parts of the country where charters may not be available, but we try to provide ourselves some flexibility by keeping a sufficiently large number of ships so that we can use NOAA ships when they are the most economical and charter where charter ships are the most economical.

Senator GORTON. What guarantee is there that charters will provide long-term savings?

Mr. WINCHESTER. Well, we have had experience in certain parts of the country where we were able to charter more economically than we could operate the NOAA vessels. So as I said, we are trying to build in some flexibility for ourselves so that we will still have the capability of going either way.

Senator GORTON. Can you provide this committee with the documentation that you used to make the management decision to charter ships for marine research rather than utilizing the present NOAA fleet?

Mr. WINCHESTER. Yes, sir, Senator, I would be very happy to provide that for the record. I do not have it with me today but we will provide it.

[The following information was subsequently received for the record:]

While there is no documentation from a cost analysis study, the proposal in the fiscal year 1984 budget to use charter vessels rather than the NOAA fleet to support Fisheries operations, was based on past experience. For example, during fiscal year 1982 NOAA supplemented the NOAA fleet support by chartering an additional 576 days at sea at an average cost of approximately $3 thousand per day. By comparison, the average estimated cost for the NOAA Fishery vessels is approximately $5 thousand to $7 thousand per day. NOAA anticipates that substantial savings can be achieved through chartering without impacting Fisheries research and resource survey programs supporting the conservation and managment of the nations living marine resources.

Senator GORTON. How many vessel days of research will there be under the 1984 budget as opposed to 1983 and 1982?

Mr. WINCHESTER. I do not have that figure available, either, Senator. We will provide that for the record.

[The following information was subsequently received for the record:]

Our records indicate that the NMFS had about 1,674 vessel days at sea in fiscal year 1982 on the NOAA fleet and will have about 1,815 days in fiscal year 1983. We estimate that about three-fourths of that time can be considered as being in support of NMFS R&D. For 1984, we are estimating that NMFS should be able to contract out for a similar level of effort but at about half the cost of using the NOS fleet.

Ship support for R&D by the rest of NOAA is estimated at about 526 ddays for fiscal year 1982, 485 days for fiscal year 1983, and 362 days for fiscal year 1984. It should be noted that most of this work occurs on vessels larger than those of the NOS fishery fleet.

Senator GORTON. What will be the fate of the NOAA vessels that you anticipate replacing with chartered vessels?

Mr. WINCHESTER. I do not believe that decision has been made. At the moment, we are just laying up, those that we do not need and will use charters where appropriate. To the best of my knowledge, we have not made any firm decision on what the final disposition of those vessels might be.

Senator GORTON. The administration's proposed budget increases in atmospheric programs carry, at least by omission, a number of hidden cuts. One of these areas is meteorological research. In this case, the $2 million increase for severe weather is offset by a decrease of $1.5 million research and development by the National Weather Service. What is the impact of these cuts for this kind of research, and what are the implications for other areas of NOAA's research and development programs?

Mr. WINCHESTER. Well, our position is that we tried to retain dollars to fund some particular areas of research that we believe are the most needed, and cut others. You notice, we did put extra money in for research in severe storms.

And I think most significantly, we put a $5.7 million increase in for NEXRAD radar, and that is consistent with our philosophy that some of the most significant improvements in weather services to the country can be made by improving our severe weather warnings and forecasts, such as of tornadoes, hurricanes, wind shear, and those sorts of things that do kill the greatest numbers of people.

We feel rather strongly that with the installation of NEXRAD radars we could improve the warning time of, say, severe tornadoes from a few minutes now up to maybe as much as 20 minutes. This would be a significant improvement. So, in answer to your question, we have made some cuts, but we have requested enhancements in other places. We feel that our enhancements are more important than the cuts that we have made.

Senator GORTON. The administration views weather programs such as agricultural weather and fire weather as specialized services which benefit specific user-groups. Does this imply that there is not a national interest or benefit in fire warnings and agricultural weather warnings?

Mr. WINCHESTER. No, sir, Mr. Chairman. It does not. I think the only thing that we intended to say is that there are several kinds of specialized weather services provided now by the National Weather Service that more directly benefit a reasonably small number of our citizens, and benefit a relatively small segment of our businesses and industrial interests.

So what we are attempting to do is to sort out those kinds of things and see what can be done to turn some of them over to the private sector. If we can do any of that, it gives us more funds to put into some of the technological developments that we believe are very important.

We understand and certainly appreciate that the specialized weather forecasts for the agricultural interests and the fruit-growing interests are important, but we believe very strongly that the private sector can do that even better than the National Weather Service or any other governmental agency.

I might say, as an addition to that, I have had a considerable amount of experience myself as a meteorologist in the private sector. I have operated companies and provided weather services, and we feel strongly that much can be done by the private sector.

Now, this does not mean that the National Weather Service will discontinue forecasting for agriculture. It means that we are looking at the possibility for trying to stop some of the very specialized types of forecasts that takes additional money and time. For example, soil temperatures, moisture content, detailed wind fields, and other temperatures, and special requirements that are used by agricultural interests, for spraying pesticides, drying hay and other operations.

So, in summary, we believe that we should bring the private sector into meteorology; we think that would be good for the science of meteorology, and would get more meteorologists involved if we make a market for them. As long as everything is done by the Federal Government, that market will never be there.

Senator GORTON. Does NOAA have a written cost benefit analysis of the impact of this change?

Mr. WINCHESTER. To the best of my knowledge, we do not have a written cost analysis. It certainly has been looked at in a considerable amount of detail but maybe not as formally as a written cost-benefit analysis. We have also had a considerable number of conversations with people in the private sector. We feel that there are meteorological firms in the private sector that could pick up those types of services.

We would not plan to drop them overnight and expect the private sector to pick them up the next day, but we believe that the private sector could be phased into picking up a lot of them, and the service would be better than we are providing now.

Senator GORTON. Is not by far the largest user of fire forecasts the National Forest Service?

Mr. WINCHESTER. Yes, sir. I suspect that is true, but some of those kinds of services are quite specialized and we see no reason why the governmental department that is responsible for the service should not assume some responsibility for the budget, extent of the program, and program requirements.

I think some kind of funding arrangement might be made, as is now done, with the aviation industry. The attempt now is to have a trust fund to pay for weather service for aviation, so we believe that some of those kinds of arrangements might be more economical than to have the National Weather Service do it all.

Senator GORTON. The administration's request for the National Weather Service proposes the reduction of 242 personnel, many of them meteorologists or meteorological technicians. This would leave the Weather Service with its lowest personnel level since the 1960's. How do you propose to provide the levels of service that the public has come to expect after laying off this many meteorologists?

Mr. WINCHESTER. Well, we believe that a fairly large number of those people who might be laid off will come from some of the places like the southern region and the Pacific and the Alaskan regions, and other organizational elements that are primarily managerial. We do not believe that we need that much management in some of our field organizations.

We are reducing some of the WSFO's to WSO's, which essentially means that we are reducing from a full forecast center down to a weather advisory type center. We do not think that in general those reductions will cause any deterioration in services.

Senator GORTON. This move, of course, is in direct opposition to the conclusion of the special report to the President and the Congress by the National Advisory Council on Oceans and Atmospheres. Is that one of the reasons that you propose not to reauthorize NACOA?

Mr. WINCHESTER. No, sir, not that particular reason. As I said in my testimony, we feel that particularly in a time of trying to reduce expenditures, there are other places where we would prefer to spend the money, rather than to support an advisory group, which we do not feel is very important to our program planning.

Senator GORTON. Have you reviewed the NACOA report, and do you have any comments on its conclusions?

Mr. WINCHESTER. Yes, sir. I have reviewed it. I think it is like a lot of those reports. After reading them, the decision gets down to judgmental factors. I am not at all going to say that there is no validity to the report, but I believe, from our point of view, we feel that we have to look at other alternatives, and many of the things we are doing now we believe are better alternatives.

I guess about the only thing I can say is: Sometimes it gets down to a difference of opinion between the people doing the study and the people responsible for managing the program.

Senator GORTON. The last 2 years, the administration has supported NACOA's reauthorization. What is different this year? That list of critiques of the nature of its reports certainly was just as true a year ago as it is now, was it not?

Mr. WINCHESTER. Yes, sir. The administration did support it last year, but as you recall, the administration request for funding was somewhat below what was authorized by the Congress, so I guess it was our feeling that the advisory group was spending more money and providing for more advice than we thought we needed.

Senator GORTON. Last year's crash of the Pan Am jet in New Orleans has been attributed to wind shear or abrupt shifts in wind speed and direction. What is being done in NOAA and other Federal agencies, to your knowledge, to improve the detection of wind shear?

Mr. WINCHESTER. Well, as I mentioned in my testimony, in answer to an earlier question, radar systems such as NEXRAD, for which we requested an enhancement of $5.7 million, is certainly being proposed to help provide that kind of advice.

Senator GORTON. Does this mean that the problem is primarily one of installing better radar systems at airports as opposed to research?

Mr. WINCHESTER. Yes, sir. That is my opinion. I am sure you may find someone who will disagree, but in my opinion during the next few years the most significant improvement in defecting wind shear can be made from technology rather than research.

The FAA, I know, is very interested in getting better radars, Doppler radars. FAA is also installing a considerable number of anemometers around airports, and within the National Weather Service, we are very actively looking at techniques we might try on an interim basis before we are able to get our NEXRAD radars installed.

So, we are looking at it, and we think it is primarily a technology problem.

Senator GORTON. Again, this year, you are proposing to downgrade the polar orbiter satellite system to a one satellite system. Have you explored other options for maintaining the two satellite systems without increasing appropriations, such as requesting other countries that utilize this data, share the costs of the system?

Mr. WINCHESTER. Yes, sir, Mr. Chairman, we have, but I would like to ask Dr. McElroy to address that, since he is the Assistant Administrator for our National Satellite Information Data Service.

Senator GORTON. Fine.

Mr. **McElroy**. Mr. Chairman, we have met with the Europeans, indeed, with the directors of each weather service in Europe. We have met with the European Space Agency. We have met with the Japanese. We did this a year ago in the spring. We repeated those meetings last fall, and we are about to embark on another series of meetings with those same people.

The result is that in the European Space Agency, they have added a study to see their interest in producing a polar orbiter. The World Meteorological Organization has put that on the agenda of the next World Congress they are going to host.

We find that all of these countries are in general receptive to the idea of eventually taking over some of these responsibilities.

Senator **Gorton**. Or cost sharing?

Mr. **McElroy**. Yes, sir. Under the concept, we are working to provide an entirely compatible but not duplicate polar orbiter that would provide the same capabilities but could be built in their own countries. They find this to be an attractive alternative. We do not know when this will come to fruition. We are hopeful, however, that it could happen within the next several years.

Senator **Gorton**. Mr. Winchester, I do not believe that I said that your longer statement will be included in the record, but it will be.

Senator Trible will be here in a few moments, but he wanted me to say to you, Mr. Winchester, as a representative of administration witnesses that he is extremely concerned with the President's decision to sell meteorological satellites. He will present a statement when he is here, and I hope you will give that appropriate attention.

With that, we thank you.

Mr. **Winchester**. Thank you very much, Mr. Chairman. We will be very happy to respond to the other questions in writing.

[The statements follows:]

STATEMENT OF JAMES W. WINCHESTER, ASSOCIATE ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Mr. Chairman and members of the committee, I am James W. Winchester, Associate Administrator, National Oceanic and Atmospheric Administation. I appreciate the opportunity to discuss with you NOAA's recommendations on reauthorization of the national climate program, the national weather modification reporting program, NOAA's meteorological satellite program, and the National Advisory Committee on Oceans and Atmosphere (NACOA). Drs. John H. McElroy and Alan D. Hecht are here with me and can answer any detailed questions on any points that I do not cover in my testimony. Also, since the committee has been provided with about 45 pages of background material, my formal testimony and statement for the record will be short and concise. With your permission, Mr. Chairman, I shall now briefly address each of the four program elements:

NATIONAL CLIMATE PROGRAM

The National Climate Program Act, Public Law 95-367, was enacted by Congress in 1978 to establish a comprehensive and coordinated national climate program. NOAA, through the National Climate Program Office, has major responsibility to implement the act. During these past 5 years, a program has been organized that is improving our understanding of climate processes, increasing our capability for providing useful climate information, and developing an ability to anticipate and respond to climate impacts. Therefore, NOAA urges reauthorization of the program. The reasons for recommending reauthorization are as follows:

First—NOAA recognizes its responsibility to execute this program, and the National Climate Program Office (NCPO) is now organizationally located in the Office of the NOAA Administrator. The Director reports directly to the Administrator. In this position the NCPO has an important role in developing programs and setting priorities.

Second—The Interagency Climate Program Policy Board has been revitalized, and now is directly involved in setting priorities for the multiagency climate budget. The NCPO has prepared a guidance paper for the fiscal year 1985 budget cycle for the board which identifies the overall needs of the NCP. It can be used by all agencies to develop their climate budget initiatives and will be used by the NCPO as the standard against which progress in the program can be measured for OMB. This approach marks a very significant step in establishing a procedure by which climate initiatives can be developed, followed and evaluated by the NCPO.

Third—There is a clearer sense of direction to the intergovernmental climate program. The principal objective of this program is to improve the delivery of climate services in the U.S. The NCPO has provided funds over the past several years to state and private groups to explore new approaches to the delivery of climate services. This exploratory phase has given rise to the concept of regional climate centers through which climate services can be delivered in a more focused and cost effective manner. This is one of several possible options for future patterns in climate services.

Fourth—The first experimental climate forecast center, established at Scripps Institution of Oceanography in 1981, will serve as the model for additional centers now under consideration. Our approach is to link the activities of the experimental centers with the operational programs on NWS which will help it to be more responsive to the needs of the user community. Other relevant climate research projects, such as the one proposed by NOAA in fiscal year 1984 called TOGA (tropical ocean global atmosphere), address fundamental links between the atmosphere and the ocean.

Climate research is entering an exciting new era. It is believed that variations in world climate are partly related to changes in the conditions of the oceans but the mechanisms are not well understood. Air pressure, wind, rainfall, and temperature fluctuations in the equatorial Pacific associated with the phenomena called the southern osciliation and El Nino are keys to understanding climate variability. At the present time, and El Nino event, marked by widespread warning of the tropical Pacific Ocean, is in progress. Severe rains and flooding in northern Peru, and drought in parts of Australia are related to this El Nino. Our ships and aircraft are measuring atmospheric and oceanographic parameters, and our satellites are measuring temperature, rainfall and cloud movements, so this El Nino will be the best documented in history. The unusual winter pattern over the U.S. this year was in part related to atmospheric and oceanic changes in the equatorial Pacific which began during the summer of 1982.

The complexity of climate forecasting is evident by the wide variation in predictions made for the winter of 1982-1983.

However, both the National Weather Service and the NCPO's experimental climate forecast center at the Scripps Institution of Oceanography successfully predicted above-normal winter temperatures for the eastern U.S. based in part on analyses of Pacific Ocean temperatures and precipitation patterns.

Fifth—The NCPO has taken a strong role in coordinating and focusing international climate activities. An example of such activity is the international satellite could research climatology project (ESCCP). The NCPO is the focal point in the U.S. for the development of this project which is scheduled to begin in July 1983 and extend until 1988. The project addresses one of the most important subject areas in climate modeling—how do changes in clouds affect climate and vice versa. A great deal of interagency coordination is needed to develop this program and the mechanism of the NCPO has proven the most effective way to do it.

THE NATIONAL WEATHER MODIFICATION PROGRAM

We are requesting a reauthorization of $100,000 for the Weather Modification Reporting Act for 1984 and such sums as may be necessary for 1985. Completion of the Nevada, North Dakota and Utah State-Federal program will be carried out as mandated in the continuing resolution for fiscal year 1983. However, a decrease of $900,000 is proposed in fiscal year 1984 to terminate NOAA's participation in those kinds of weather modification effort. NOAA believes those types of activities should more appropriately be undertaken and funded by individual States, but cloud physics and precipitation progresses will remain as essential parts of NOAA's research mission. NOAA will maintain the weather modification program established by Public Law 92-205 and represent the U.S. in weather modification programs of the

World Meteorological Organization, but NOAA believes that during the next few years continued research in clouds physics and precipitation processes will be more productive than experimental weather modification projects.

METEOROLOGICAL SATELLITE PROGRAM

The meteorological satellites are a key source of information for our National Weather Service forecasts. Two enhancements have been requested in the fiscal year 1984 budget. These are: (1) for the implementation of a program to improve weather forecasting and warning services through the operational use of VISSR atmospheric sounder (VAS) data from geostationary satellites, and (2) to modify the polar satellite to allow it to operate in an orbit that will provide more timely satellite data for National Weather Services numerical prediction models. A third item of interest, while not a new initiative in the sense of items 1 and 2, will be the procurement of the follow-on series of GOES spacecraft.

That increase is to initiate the procurement of the next series of GOES spacecraft. There is a minimum five-year procurement, fabrication, and test cycle from contract award to launch readiness of the first spacecraft in a new series. In order to continue a two-GOES spacecraft program without a potential gap in service, a launch in fiscal year 1989 is required. This new series will be the first to be launched by the Space Shuttle, and will be procured by a competitive solicitation.

The fiscal year 1984 budget request maintains the two-satellite configuration for GOES, critical to obtaining timely images of the movement of destructive weather systems over much of the western hemisphere, Although the budget reflects a net increase of $9.369 million over the fiscal year 1983 figures, the amount actually represents a continuation of procurements already underway. In summary the GOES budget request includes:

A $4.1 million request for in-orbit performance incentives for the manufacturer of GOES- D, E, and F.

A $37.698 million request to continue the procurement of GOES- G and H spacecraft, which began in fiscal year 1982.

A $7.2 million request to initiate the procurement of the follow-on series of GOES spacecraft.

A 18.759 million request for funding of launch services for GOES- G and H spacecraft, to be launched in fiscal year 1986.

A $4.471 million request for ground system changes required for compatibility with new NASA communications networks, which NOAA relies on for spacecraft launches (fiscal year 1983 continuation).

POLAR SYSTEMS BUDGET—$39.333 MILLION (INCLUDED IN METSAT FIGURES)

The fiscal year 1984 budget request for the polar system is $4.308 million less than the fiscal year 1983 appropriated level. This represents a decrease of $3.273 million for the nonrecurring ground system procurements and a net decrease of $1.035 million associated with spacecraft and launching procurements. This net decrease is comprised of one decrease (−$2.035 million) and one increase (+$1.0 million).

The decrease in the Polar Orbiter from two operating spacecraft to one spacecraft will result in a savings of $38.0 million in 1983 and an additional $21.0 million in 1984 compared to the cost of maintaining a two polar orbiting satellite system. This change will result in a total savings of $375 million over the next ten years.

Our experience over the past several years has demonstrated that the likelihood of the loss of polar satellite coverage, even for a few months, is minimal and would occur only with the unlikely event of failure on launch or premature failure in orbit. The primary function of the polar orbiting satellite is atmospheric soundings for use in the National Meteorological Center prediction model. The increase of $1.0 million for proposed modifications of the polar orbiting satellite to allow the satellite to orbit in an equatorial crossing time (near noon orbit) will improve the timeliness of the polar sounding data from the conversion to a one polar satellite system in 1985. Additionally, the operational use of the VAS sensor will provide much of the sounding data and on time scales much smaller than those associated with the current polar orbiting satellite system or the radiosonde network. In addition, the fiscal year 1984 request represents a $6.0 million reduction from last year's because of a program change to launch NOAA H and I on Atlas launch vehicles instead of the space transportation system (shuttle).

In summary, the polar request includes:

$3.7 million to continue integration and testing of NOAA -G and -D.

$14.63 million to continue procurement of NOAA -H and -I sensors and the initiation of procurement of NOAA- H and I spacecraft.

$18.088 million to continue refurbishment of Atlas-F launch vehicles and for launch service.

$2.915 million to continue modifications and improvements to ensure operational effectiveness of the data processing ground system.

LANDSAT OPERATIONS—$23.536 MILLION

NOAA is requesting a fiscal year 1984 appropriation of $23.536 million to support operation and management of the U.S. Landsat system. The total cost of Landsat operations in fiscal year 1984 is $39.536 million; the difference represents other Federal agencies' reimbursements for Landsat data. NOAA expects to recover the total cost of Landsat operations form data sales to Government and non-Government domestic and foreign users. This funding will be reflected in the budgets of Federal user agencies, including the Department of Agriculture, the Department of the Interior, and national security agencies.

On January 31, 1983, NOAA assumed from NASA responsibility for operation of the new Landsat-D system. The funds from this request will be used to contract for management of the ground system at the Goddard Space Flight Center, to reimburse the Department of the Interior's EROS data Center at Sioux Falls, South Dakota, to pay for archiving of Landsat data and other data services.

NATIONAL ADVISORY COMMITTEE ON OCEANS AND ATMOSPHERE (NACOA)

NOAA does not recommend reauthorization of NACOA. NACOA was established by Public Law 92-125 on August 16, 1971. It was reestablished and modified by Public Law 95-63 on July 5, 1977. Its mission is to provide advice to the Congress and to the administration on oceanic and atmospheric matters. Over the last 11 years, the committee has been composed of competent members and has produced a large number of reports for the Congress and the administration. However, many of these reports and advisory services have primarily addressed policy and management issues which were not very useful to NOAA or the Department of Commerce in the management of oceanic and atmospheric programs.

Furthermore, the results of the NACOA studies have consisted of a very general overview and have not been very useful for program planning. We believe that the kind of programmatic advice we need can be provided by a variety of existing organizations such as: National Academy of Sciences, National Research Council, Marine Board, National Ocean Industries Association, university associations, environmental and conservation groups (approximately 400 national groups), private consulting firms, ad hoc committees, etc.

Mr. Chairman, this concludes my prepared testimony. My collegues and I will be glad to answer any questions you have.

STATEMENT OF NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Mr. Chairman and Members of the Committee: Our knowledge of the fundamental interactions between oceans and atmosphere has been growing steadily in recent years and has begun to pay off. For example, temperature and precipitation estimates are now 85 percent accurate and five-day forecasts are as good as three-day forecasts were ten years ago. Seasonal climate forecasts are improving as well. Additional advances are clearly foreseeable over the decade ahead, and the organizational changes we have put and shall put in place will help ensure that NOAA exploits them to the fullest, and at the lowest possible cost to the taxpayer.

NATIONAL WEATHER SERVICE

The basic objectives of the National Weather Service (NWS) are (1) to protect life and property from environmental hazards by providing all essential forecasts, warnings and advisories; and (2) to promote economic development by supplying the nation with timely weather and climate services. The quality of these services can be substantially upgraded with new technology, especially in reducing weather-related loss of life and property damage.

With recent advances in radar, geostationary satellites, automatic weather and hydrological observations, and remote sensing systems, a firm technical base exists for major advances in observation techniques. New integrating and processing systems will allow us to interpret this data and use it in near-realtime. Dissemination of warnings to the public can be expedited through development of voice synthesis systems and information packages suitable for teletext systems; cable, satellite and conventional TV; radio; telephone systems and newswires. These matters will be proposed in greater detail further on in this statement.

NOAA is conducting a study to determine the most cost-effective way to operate the NWS. This contractual study will attempt to identify services and products that are inherently Federal in character, and determine where significant savings can be achieved by the year 2000 through automation, centralization of support activities and contract operations, consistent with the legally-mandated roles of NWS. Results will be available to NOAA management this summer.

NOAA's fiscal year 1984 budget request includes a number of items to assist the National Weather Service in adapting new technology to its operations. Of prime importance is Doppler radar, which offers marked improvement over conventional radar for early and accurate identification of severe thunderstorms, especially tornadoes and squall lines. Doppler radar can increase average warning lead-time for the larger, more destructive tornadoes from the current one or two minutes to as much as 20 minutes.

NOAA proposes an increase of $5.7 million to continue a joint agency (NOAA/Department of Defense (DOD)/Department of Transportation (DOT) program for development of common Doppler weather radar capability. This new technology will improve severe weather short-term forecasting, reduce losses of life and property by improving distribution of severe weather and flood warnings, and replace obsolete radar equipment that will be nearly 30 years old by the time the Next Generation Weather Radar (NEXRAD) becomes operational. Corresponding budget increases are being requested by both DOD and DOT. The joint program ensures that the shared system will be more economical in both initial procurement and operational support than three separate programs unique to each agency. Together the increases proposed by the three agencies will fund a constrained and limited continuation of the development phase of the program.

In the meantime, NOAA proposes to achieve substantial savings in fiscal year 1984 by streamlining NWS management and operations structure, including consolidation of the four coterminous NWS regions into three managerial areas of responsibility, for a savings to $1.2 million (managerial and operational effectiveness will be maintained by augmenting the Central and Eastern Regional Headquarters staffs), consolidation of the Pacific and Alaska Regions, generating a savings of $407,000 through reduction in functions and staff at the Pacific Region Headquarters in Honolulu, Hawaii; elimination of regional hydrologists at each of the Headquarters offices in the four coterminous regions, for a savings of $580,000; and reduction in community liaison beyond basic public warning and forecast services for an overall savings of $4.069 million.

In recent years private-sector meteorological services have expanded tremendously. NOAA proposes to save $1.036 million by terminating dedicated agricultural fruit-frost and fire-watch services. They benefit only specific user groups, and some are now provided by the growing private meteorological industry. NOAA will continue to disseminate generalized public service weather forecasts to support agricultural and forestry operations. No general station closings or reductions in hours of operation are proposed. A reduction of $1.5 million will be accomplished by curtailment of equipment and techniques research and development activities.

Successful demonstration of the Automation of Field Operations and Services (AFOS) system has enabled NOAA to accelerate plans for phaseout of obsolete teletypewriter and facsimile systems for NWS field offices, thereby generating savings of $2.5 million as early as fiscal year 1984. Other communications support will be reduced $1 million through management and equipment reconfiguration. Centralization of preparation of aviation area-forecasts through an automated system at the Kansas City National Severe Storms Forecast Center will enable us to reduce funding by $350,000.

Additionally, NOAA proposes a reduction in the level of engineering activities at the National Data Buoy Center located at Bay St. Louis, Mississippi, for a savings of $574,000. In support of the Administration's policy to redistribute the burden of Federal services from the general, tax-paying public to special user groups, NOAA also proposes a $525,000 decrease in funding of NOAA Weather Wire Services (NWWS) to new subscribers. Plans are underway to close our Sterling, Virginia operation and transfer its instrument testing functions to NDBC. In fiscal year 1982 the C–130 aircraft at the RFC was laid up for instrument upgrading and maintenance, which cut operational costs $100,000. The C–130 had been used mainly to provide a third platform, with the two NOAA P–3s, for simultaneous penetration of hurricanes to obtain radar, pressure, temperature and other data. Because of continued improvement of P-3 remote sensing capabilities, it was decided that savings from the lay-up should be allocated to additional P-3 flight hours. All of the proposed cuts are consistent with maintenance of NWS operations and ensure Congressionally mandated environmental warning and forecast services.

WEATHER OBSERVATION AND PREDICTION

NOAA Weather Observation and Prediction Programs in fiscal year 84 will continue to develop new techniques and deliver new products to the Weather Service for use by operational forecasters. New observational capability developed during the last year includes: (1) a new airborne Doppler system for detailed observation of atmospheric events such as microbursts, which have been responsible for several tragic aircraft accidents (e.g. New Orleans), and (2) a vertical profiling system (Profiler) which can continuously monitor winds, temperature, humidity and water vapor content at various levels. The Profiler system has important atmospheric dynamics research applications and may replace the radiosonde. Doppler radar is also being employed with great success in studying the early development of severe convective storms, which continue to cause heavy loss of life, property and commerce. Clean-air Doppler wind mapping may give several hours advance storm-warning.

New programs are being initiated to improve precipitation forecasts—the one parameter which has not improved significantly over the last decade. A combination of new observational techniques, process-related research, and numerical modeling will be focused on forecasting flash floods and heavy snow. The Prototype Regional Observing and Forecast System (PROFS) is preparing specifications for future regional forecasting stations; PROFS has demonstrated the potential of new observing tools—Doppler radar, Profiler, satellites, tighter networks of conventional sensors—to significantly upgrade nowcasts of severe weather. Hurricane research will concentrate on improving tracking and intensity prediction. Better measurement of synoptic patterns, plus new understanding of basic processes and faster computers, will provide the basis for refined hurricane forecasts and warnings.

SOLAR TERRESTRIAL RESEARCH AND SERVICES

NOAA's Solar-Terrestrial program provides services such as forecasts, alerts and warnings of solar disturbances which affect electronic communications, electrical power-grids, the Alaska oil pipeline, air transportation, satellite navigation systems, space-shuttle flights, national defense command and control systems, and magnetic oil exploration surveys.

NOAA is proposing to phase out its solar-terrestrial research program. Since NOAA itself is a small-scale user of solar-terrestrial services, the possibility of transferring these services either to DOD, NASA and/or private industry, the major users, is being explored. NASA and DOD are examining their solar information needs and costs. Following completion of this assessment and a review of industry's total use and costs, a final determination will be made as to the most efficient designation and/or financing of solar research and service responsibilities.

Meanwhile, in collaboration with the Air Force, NOAA has developed a new algorithm for predicting Earth arrival time of solar-flare shock waves with a margin of error of only a few hours in a one to three-day time-frame. NOAA will continue to collect and process space environment data sets in realtime and provide a reduced level (eight hours per day, five days per week rather than 24 hours per day) of forecasts and warning services to Federal agencies, industrial users, foreign governments and university researchers. Research to maintain quality control, design new satellite instrumentation and improve understanding of solar terrestrial processes will be eliminated.

GENERAL RESEARCH AND DEVELOPMENT

NOAA's air quality research will continue to study anthropogenic influences, including the monitoring of global concentrations of carbon dioxide, ozone, freon and other atmospheric constituents, as well as solar radiation. We will continue to measure the effects of El Chichon on atmospheric parameters, the natural sources and atmospheric chemistry of acid rain precursors, the transportation and deposition of air pollutants, and the interaction of trace compounds. Cross-section measurements are critical in modeling the chemical processes underlying air pollution.

Acid rain is a continuing issue of both public and scientific interest. Biological sulfur compounds have been measured in both the Atlantic and Pacific Oceans that could act as precursors of precipitation acidity. These findings help explain relatively high acid concentrations at remote sites such as Australia, Hawaii and the southern Indian Ocean. However, the natural and anthropogenic origins of acid rain are complex; more research must be undertaken before regulation is attempted.

NOAA has learned that natural convective processes are responsible for transporting trace chemicals to the upper atmosphere where they can adversely affect ozone levels. The role of NO_x in ozone chemistry is slowly being ascertained through modeling and more accurate measurements.

NOAA measurements indicate that the level of CO_2, often implicated in atmopheric warming, is now rising at approximately 1.5 PPM per year. Recent research indicates that other trace constituents such as chlorofluorocarbons, nitrogen componds, methane and ozone may also contribute to a greenhouse effect.

* * * to understand the role of the North Atlantic Subtropical Gyre, an ocean circulation pattern, in the heat balance of the Earth. The near-term focus is on development of an economic methodology for monitoring the Florida Current (Gulf Stream) over extended periods.

NOAA scientists participated with researchers from several universities in a local topography experiment demonstrating that fluctuations in the oceanic thermal field over hundreds of kilometers can be deduced from the velocity of low-frequency acoustic transmissions between moored arrays.

NATIONAL CLIMATE PROGRAM

Coordination of Federal agency climate activities and preparation of the Annual Report continue to be major responsibilities of the National Program Office. Increasingly, however, the office's resources are committed to refining climate forecasts, providing better climate services, and promoting international cooperation in climate research, monitoring, analysis and data dissemination. During the past year. NOAA made a major effort to respond to each of these mandates.

EXPERIMENTAL CLIMATE FORECASTING

Improving climate forecasts is a high priority of the National Climate Program. NOAA's objective is to apply the results of academic and Federal research to forecasting operations of the National Weather Service (NWS). The first Experimental Forecast Center, established at the Scripps Institution of Oceanography in 1981, has developed new methods of forecasting seasonal temperature and precipitation, one of which is being studied by the NWS for possible application.

Understanding how the oceans and atmosphere interact is one key element in better seasonal climate forecasting. Recent observations and theoretical work suggest that winter conditions over North America are linked to large scale fluctuations in wind, pressure and ocean temperature over the tropical Pacific, changes associated with the Southern Oscillation and El Nino. The Southern Oscillation reflects major changes in air pressure over large areas and is described by the difference in pressure at two Pacific Ocean stations 4000 miles apart. El Nino is a warming of ocean water temperatures off the coast of Equador and Peru in January, February and March. The two phenomena are related in yet unknown ways. During this past year there was a major change in the Southern Oscillation pattern, which started much later in the year than the previous eight events of this type, yet was one of the strongest on record with unprecedented changes in surface wind and precipitation in the equatorial Pacific.

The NWS temperature forecast for the winter of 1982–83 which correctly predicted above normal temperatures in the Eastern United States, was based in part on analysis of Pacific Ocean temperatures and rainfall patterns. Researchers at the Experimental Climate Forecast Center reached essentailly the same conclusions. Looking to the future, the Agency foresees a continuing need for basic studies to deepen our knowledge of climate processes and to apply what we learn to new forecasting methods. NOAA is planning new research on the tropical ocean and global atmosphere.

The problem of matching resources to tasks requires creative ways of funding to support some of our work, so it seems appropriate to encourage the private sector to participate in testing forecast methods. The Office is working with the University Corporation for Atmospheric Research (UCAR) to try to form an industrial consortium to help provide financial support for new experimental centers. Agency officials have met with many representatives from industry to discuss this proposal.

IMPROVING CLIMATE SERVICES

The approach taken, and described in our Five-Year Plan, is a phased effort, beginning with Federal-state cooperation in projects to demonstrate the value of climate services in various institutional formats. NOAA was able to support projects in several states and, equally important, successfully stimulated interest in many more states to expand and improve existing climate services.

Anticipating the need to move beyond cooperative Federal and state demonstration projects, in 1980 the Office asked the Climate Board of the National Academy of Sciences to advise on how we might fulfill the mandate of the Act. The Climate Board estalished a panel on intergovernmental climate programs to assist the Office in developing a program for Federal and state cooperation in climate studies and advisory services.

The panel's report, "Meeting the Challenge of Climate", was provided to NOAA last year. Its major recommendation was that NCPO "take a leadership role in the development and support of a coordinated, nationwide system of climate services involving both the public and private sectors." Other recommendations were that NCPO: (1) complete the initial exploratory phase, (2) take the lead in coordinating Federal agency participation and Federal-state cooperation and (3) develop incentives for bringing state and regional climate service programs into a nationwide system.

NOAA is looking very carefully at the panel's recommendations, particularly their recommendation that the Office take a leadership role in developing a coordinated, nationwide system of climate services involving both the public and private sectors. The Agency must evaluate the costs and benefits to the nation of establishing such a system. NCPO staff worked closely with the panel during the study, and we have taken some steps consistent with the recommendations. NOAA has virtually completed the exploratory phase consisting of demonstration projects, and is committing most of its effort to demonstrations of regional and state climate service systems.

Later this month, the Agency will hold a conference at Florida State University in Tallahassee to discuss what needs to be done—what NOAA's role is or should be, how USDA through its State Cooperative Extension Services might help establish climate services, and how the private sector can best participate. The experience of regional climate centers, established initially with NCPO support, will be examined as one option for organizing nationwide climate services. NOAA will also discuss how new technology can be exploited.

INTERNATIONAL COOPERATION

The NCPO has been assigned responsibility for coordinating interagency participation in international climate-related activities, including the U.S. role in the World Climate Program. A prime example is the International Satellite Cloud Climatology Project (ISCCP) which is scheduled to begin in July 1983 and continue until 1988. One of its major activities will be to process GOES and TIROS-N data as well as merging the global data-set and producing the cloud parameters for the project. The NCPO has alerted agencies to support requirements, including satellite data, limited aircraft and space shuttle flights, research studies and model development. In addition, NCPO is organizing the research community to develop a research plan for U.S. participation.

The NCPO is also coordinating and developing guidance for the U.S. position on climate issues for the forthcoming WMO Congress in May 1983. Other international activities of the NCPO have included membership in a delegation to China last September to discuss large-scale air-sea interaction and implementation of bilateral agreements with France, Spain and the USSR.

The NCPO, in conjunction with the World Climate Program Office of the WMO, also supports a project with the Oklahoma Climatological Survey to demonstrate the use of climate data with microcomputers for possible application in less developed countries. This project and other activities of the NCPO were reported at a briefing for scientific representatives of the diplomatic corps in Washington last November.

INTERAGENCY COORDINATION

The interagency Climate Program Policy Board has been giving major attention to the multi-agency climate budget request and development of guidelines for budget priorities. The Act requires periodic revision of the Five-Year Plan, and the NCPO will be undertaking a revision of the Plan this year. Board members are now reviewing the 1982 Annual Report for agency approval.

PROGRAM HIGHLIGHTS IN 1982

Significant progress was made in a number of areas in 1982. More detailed information on the following matters is provided in the 1982 Annual Report.

SEASONAL CLIMATE FORECASTING

The National Weather Service (Climate Analysis Center) introduced a new forecast format based on the probability of warm, near-normal, or cold temperatures and light, moderate or heavy precipitation. The outlook concentrates, as much as the state of the art allows, on specific areas with large departures from the norm. New techniques also are being tested to improve the accuracy and lead-time of long-range forecasts.

In its 1982–83 three-month winter forecast (Dec.-Feb.), NWS correctly forecast warm temperatures for the eastern U.S., and cold temperature and heavy precipitation in the West. Essentially the same forecast was made by the Experimental Climate Forecast Center. By contrast, several prominent meteorologists and climatologists had predicted severe winter conditions, even record cold temperatures, in the eastern U.S., and their forecasts were widely reported by the national media. This extreme divergence points up the difficulty of seasonal climate forecasting.

DETECTING CLIMATE CHANGE

The Mexican volcano El Chichon erupted a year ago and ejected massive amounts of ash and sulphur containing gases into the stratosphere. The El Chichon cloud is spreading widely, possibly to the North Pole and to high latitudes in the southern hemisphere. NASA, with cooperation from NOAA, DOE, NSF and several universities is monitoring the cloud's radiation properties. In mid-year, NCPO began informally to coordinate information exchange among scientists in Federal agencies and the university community. The consensus is that it is premature to attribute any present surface climate effects to El Chichon. There is an apparent stratospheric warming due to the cloud. Some surface cooling could occur by 1984 or 1985.

More than 20 years of precise data on atmospheric CO_2 have accumulated from observatories in Mauna Loa (Hawaii) and the South Pole, and the data show a yearly rise of atmospheric CO_2 (0.8 ppm.yr growing to about 1.2ppm/year) at these stations through 1981. The increase is closely correlated with the increase in CO_2 emissions from fossil fuel, but some fraction of it may be attributable to other causes, such as deforestation. Because of its possible long-term affect on climate, CO_2 analyses continue to be a priority effort of the Department of Energy, NOAA and the National Science Foundation.

CLIMATE DATA AND RELATED SERVICES

NOAA has published an Interim Climate Data Inventory and installed it in a nationally accessible on-line information retrieval system. Users with simple computer terminals can access and search the inventory from hundreds of cities just by making a local telephone call. Preparation of the inventory is an early step in establishing a climate data and information clearinghouse.

Following the extensive heat wave of 1980, the Community Services Admninistration asked NOAA for current weather and climate data to help it anticipate the need for emergency aid. NWS now also makes daily calculations of the temperature-humidity index (wind-chill in winter) for hundreds of U.S. cities. Other important climate data products include the Palmer drought index (PDI) and the crop moisture index (CMI), both reported in the Weekly Weather and Crop Bulletin, published jointly by the Departments of Commerce and Agriculture. PDI is a measure of prolonged moisture deficiency; CMI is a measure of week-to-week change and is an indicator of current moisture available for crops.

ASSESSMENT OF CLIMATE IMPACTS

NOAA's report U.S. Economic Impact of the Severe Winter of 1982, attributed $8.2 billion in losses to inclement weather. The report compared these losses with those from other major meteorological events: $36.7 billion due to the severity of the winter of 1976–77, and $8 billion due to the 1980 heatwave. The report was widely reported in the national media, and copies were requested by many government offices, businesses and universities. The utility of these assessments is in identifying and anticipation those sectors of the economy most affected by severe climate events.

The Department of Agriculture's World Agriculture Outlook Board (WAOB) has expaned its early-warning capability. Agricultural meteorolgists at WAOB use information provided by the National Weather Service about global weather conditions to make world-wide crop assessments. A NWS meteorologist assigned to the Joint Agricultural Weather Facility in USDA devised a three-category snowcover approach to use satellite data in monitoring winter kill of what until the World Meteorological Organization can routinely provide snow-depth data.

The Agricultural Research Service (USDA) continues its research on plant responses to environmental changes. The studies include climatology of dry-day frequencies, short-period rainfall intensities, hot wind effects, elevated rainfall, elevated CO_2 levels, changing soil tillage practices and varying levels of ozone concentration, to mention a few. Significant work continues in developing models for assessing plant-soil-atmospheric interactions and the utility of remote-sensed data.

NOAA/National Marine Fisheries Service (NMFS) continued research on a wide range of climate-induced effects on size and distribution of fisheries. Because of the vulnerability of fish in their early life stages, research has been concentrated on egg, larval and juvenile phases. A good estimate of first-year survival is important for management of each year-class as it enters the fishery.

In summary, the National Climate Program, now in its fifth year, is firmly established and has made considerable progress in meeting the goals mandated by the Act. The United States has a well-defined and coordinated program of domestic and international activities in climate-related research, monitoring, assessment and utilization of information.

NATIONAL WEATHER MODIFICATION REPORTING ACT

Public Law 92-205, enacted December 18, 1971, requires that all non-Federally sponsored attempts to modify the weather in the United States be reported to the Secretary of Commerce and that the Secretary shall maintain a record and periodically publish summaries of such activities. Responsibility for administering the reporting program was delegated by the Secretary to National Oceanic and Atmospheric Administration (NOAA). In 1973 Federal agencies agreed to report their weather modification activities to NOAA. Consequently, the reporting program provides a unique source of information on weather modification projects undertaken in the United States and its territories. The data bank contains authoritative information on past and current weather modification experiments and operational projects. Timely reporting supplies information with which we can assess the possibility of harm to persons, property or the environment, or of interference with Federal or other research projects. The data are also used to show trends in weather modification activity over the years and around the country.

In addition, NOAA's reporting program serves two functions on the international scene. On March 26, 1975, the Government of the United States and the Government of Canada signed an agreement to exchange information on weather modification activities carried out in or over the territory of either country within 200 miles of their international boundary. The Canadian Atmospheric Environment Service is designated to implement the information exchange with NOAA. On a broader scale, NOAA provides information on annual activities in the United States to the World Meteorological Organization for publication in its yearly "Register of National Weather Modification Projects".

SATELLITE SERVICES

NOAA's National Environmental satellite, Data and Information Service (NESDIS), was established on December 1, 1982. This new service exemplifies NOAA's determination to promote efficiency and combine operations whenever possible. It is composed of elements and programs of the former National Earth Satellite Service (NESS) and Environmental Data and Information Service (EDIS).

Both NESS and EDIS had always been heavily committed to scientific data gathering, processing, application and dissemination. EDIS archived satellite data and products produced by NESS, NASA and DOD, and disseminated them to retrospective users. Both organizations faced similar data-processing problems and technological opportunities, and could benefit from still more tightly integrated operations.

Data communications also exhibited common problems and potential for beneficial joint action. Both EDIS and NESS participated in national and global data-networks and extensive international exchanges. These computer and data networks comprise important elements of the coming merger of telecommunications and computers in a new "informatic" society. The efficient use of this integrated capability in NESDIS will be essential to further our understanding of geophysical, oceanographic and meteorological processes on a planetary scale.

The merger permits integrated budget development, data policy and resource management. It upgrades internal and external communications, promotes more efficient operations, and speeds the dissemination of both remote-sensing and other environmental data to an expanding clientele. It also unites remote sensing and ground truth in the same organization. That will facilitate development of innovative data models, analyses, products and services utilizing integrated satellite and conventional data-sets to refine environmental decisionmaking in a rapidly changing market-place.

THE NESDIS MISSION

NESDIS administers programs for the development of civilian satellite-based environmental remote-sensing systems, and for the acquisition, management, dissemination, exchange and use of global environmental data. This includes the design, development and distribution of environmental data and services to domestic and foreign clients in government, commerce, industry, the scientific and engineering communities, and the general public. Such information is critical to the saving of lives and the protection of property, and to economic decisionmaking, national defense, energy development and distribution, global food supplies and natural resource management.

Today, two NOAA polar-orbiting satellites monitor daily weather and surface conditions over the entire globe. Two geostationary weather satellites stare, respectively, at the Atlantic Ocean and the U.S. East and Gulf Coasts, and at the Pacific Ocean and West Coast. A single Earth-resources satellite, called Landsat, is in low-altitude polar orbit. These U.S. spacecraft are complemented by a number of foreign Earth-observing satellites.

WEATHER SATELLITE DEVELOPMENT

GOES-4 (West) and -5 (East) constituted NOAA's Geostationary Operational Environmental Satellite (GOES) system throughout most of 1982. Both are equipped with the Visible Infrared Spin-Space Radiometer (VISSR) Atmospheric Sounder (VAS). The VAS provides traditional images of the Earth's surface and cloud cover, as well as profiles of atmospheric temperature and water vapor at various altitudes. The VAS instruments are being tested to determine their operational reliability.

Until its demise on 25 November 1982, water vapor images from the GOES-4 VAS were transmitted four times daily to NWS Forecast Offices and other meteorological agencies. VAS water-vapor data gave the San Francisco Satellite Field Service Station unique and unprecedented insights into large-scale atmospheric flow over data-sparse areas of the Pacific Ocean. VAS permitted much closer monitoring of the precipitation potential of late-season Eastern Pacific tropical storms and hurricanes, which has great significance for planning the harvest of fruit and vegetables in California.

VAS soundings may also substantially improve numerical weather forecasts for the country as a whole. Unlike the sounders on current polar-orbiting satellites, the GOES-4 VAS probed the atmosphere over the Pacific Ocean simultaneously with conventional balloon soundings over the mainland. In two of six tests, the input from the Pacific dramatically improved the 12- to 24-hour forecast, and in no instance was the forecast degraded. More tests are planned for 1983.

Experimental VAS soundings from the GOES-5 spacecraft were disseminated to the National Severe Storms Forecast Center in Kansas City over the Central Storm Information System. That greatly augmented the timeliness of GOES data and raised its value to forecasters in rapidly developing severe-weather conditions. New programs are being developed to forecast heavy snow.

NESDIS also continued to use GOES images to assist flash-flood forecasting by estimating the amount of rainfall in thunderstorms. The Service developed an automated technique to track cloud development shown in the GOES images.

During 1982, NESDIS began using an interactive computer to derive high-level wind measurements, replacing the old film-loop method and saving $50,000 annually.

LANDSAT DEVELOPMENTS

NASA launched Landsat-D (renamed Landsat-4 after achieving orbit) on July 16, 1982 and completed operational testing in November. On January 31, 1983, management responsibility for the Landsat system was transferred from NASA to NOAA—

inaugurating the first civil-operational land remote-sensing satellite system. NOAA now has primary responsibility for all U.S. civil-operational remote-sensing satellite activities. It will continue NASA's direct-readout services to foreign-operated ground stations and make Landsat data available to all on a public, nondiscriminatory basis.

Landsat-4 carries one operational instrument, the Multispectral Scanner (MSS) similar to those flown on Landsats 1, 2 and 3, and one research and development instrument, the Thematic Mapper (TM). The 30-meter resolution and seven spectral bands of the TM, compared to the 80-meter resolution and four bands of the MSS, make Landsat-4 the most advanced civil satellite in orbit today.

NOAA assumed responsibility for producing and distributing Landsat data and products, including those from the Landsat 1, 2 and 3, on October 1, 1982. It has contracted with the Department of the Interior's Earth Resources Observation System (EROS) Data Center for production and distribution of data and products output. The products are sold to Federal and other users to defray the cost of managing the Landsat program, and of operating and maintaining Landsat activities at the Goddard Space Flight and EROS Data Centers.

In 1982, NOAA hosted six public meetings to inform users of progress toward an operational Landsat system and to identify their concerns. NOAA explained that the new prices for MSS products recover only operating and maintenance costs, not capital outlays. NOAA will hold its third annual series of public meetings on the Landsat Program in various locations around the country this year.

On February 10 of this year, the X-band transmitter on Landsat-4 failed and temporarily interrupted the flow of TM data to the ground. This flow will be restored when the Tracking and Data Relay Satellite System is deployed later this year by NASA.

SATELLITE APPLICATIONS

In late March and early April, NOAA-7 and GOES satellites detected and monitored four large eruptions of El Chichon volcano in Mexico. The last eruption thrust an immense dust cloud into the atmosphere; it dispersed between 5°N and 30°N latitude and encircled the Earth within three weeks. NOAA-7 and the Japanese GMS satellites also monitored the mulitple eruptions of Galunggung volcano in Java between April and August, 1982. In addition, these satellites were the first to detect the eruptions of Loputan volcano in Indonesia on August 26 and 27. The Air Lines Pilot Association requests technical assistance in using satellite data to re-route air traffic in such cases.

In May 1982, NESDIS began producing maps of incoming solar radiation for the entire United States, printing insolation values for 1° squares on the basis of GOES satellite data. The data are being evaluated by USDA for use in crop-yield estimates, by NWS for evapotranspiration profiles and by the U.S. Forest Service for fire-weather models. Insolation estimates were also extended to Mexico, Argentina, and Brazil.

During the same month NESDIS began producing weekly composite vegetation-index images of the Northern and Southern Hemispheres, which help scientists track regional phenomena such as droughts, desert creep and deforestation. In August, the San Francisco Satellite Field Service Station started producing a twice-weekly vegetation-index for agricutlrual areas in California, Oregon and Washington.

The Coastal Zone Color (CZCS), a NASA-developed instrument orbiting on the Nimbus-7, provides large maps of phytoplankton blooms, suspended particulates, and water masses and types. NESDIS is studying applications of these data.

Last year, scientists at NOAA's Southwest Fisheries Center used CZCS ocean-color data and NOAA-6 temperature measurements to define the spawning habitat of the northern anchovy and predict its distribution and migration. Using similar satellite and fishery logbook data, the scientists also demonstrated that albacore tuna congregate near color boundaries, preferring warm, clear, oceanic waters and avoiding cool, turbid, coastal waters. Satellite color and temperature data and acoustic devices attached to free-swimming albacore identified water clarity, rather than temperature, as a probable cause of tuna aggregation near oceanfronts.

Ocean-color data also were used with thermal data to map distribution patterns of bluefin tuna in the Gulf of Mexico. This effort has been highly successful.

During the state-Federal Southeast Area Mapping Program (SEAMAP), completed in 1982, the NOAA Southeast Fisheries Center demonstrated that satellite communications could speed up data distribution to users. NOAA, National Marine Fisheries Service chartership, and state and Mexican research vessels particiated in the program. Information on bottom fish and shrimp size was transmitted through the ATS-3 satellite and the NOAA ARGOS data-collection system to shore stations for distribution to fishermen, fishing associations, state-fishery managers, scientists and Federal investigators.

New Orleans and Washington Satellite Field Service Stations now are producing thermal sea-surface analyses for the Gulf of Mexico and northwest Atlantic. The charts help fishermen to pinpoint thermal gradients where fish tend to congregate. They also provide economic and navigational benefits to commercial marine transportation and recreational boaters by delineating ocean currents such as the Gulf Stream.

During SEAMAP surveys last summer NOAA was able to apply satellite thermal-data to an environmental event potentially damaging to coastal shrimp resources in the northern Gulf of Mexico. Evaluation of thermal data from bottom waters off the coast of Louisiana showed a high correlation between low oxygen levels, high organic loads and pools of unusually warm, highly stratified waters.

The Northeast Fisheries Center is continuing work in the Coastal Habitat Assessment Research and Mensuration (CHARM) Program. Using Landsat multispectral scanner data, Center scientists quantify changes in bio-productivity, biomass, and extent of principal coastal-zone vegetation from North Carolina to Maine. Phase One of the program, to determine wetland acreage and type of vegetation, has been completed. During this phase, the Center participated in three field experiments of the National Science Foundation warm core ring study, examining physical, chemical and biological processes in the interaction of warm core rings with Gulf Stream waters, and refining marine remote-sensing technology. Detailed data-analyses will be provided during 1983.

SEARCH AND RESCUE SERVICE

A new version of polar-orbiting spacecraft, the Advanced TIROS-N (ATN), has been developed to carry an increased payload. The first ATN satellite, NOAA-E, will be launched in late March with a search and rescue capability. The search and rescue receiver, to be flown on NOAA-E and subsequent polar-orbiting satellites, will monitor emergency radio frequencies and record emergency broadcasts as the satellite passes within range of downed aircraft or ships in distress. These transmissions will be read out by ground stations and transmitted to Scott Air Force Base in Illinois and to various Coast Guard stations for follow-up. Under certain conditions the Air Force and Coast Guard can receive the emergency transmissions directly via the satellite.

NESDIS participated in a NASA-sponsored international search and rescue demonstration project throughout 1982. The Soviet Union launched a satellite with this capability in June. Using the communications instrument on the Soviet spacecraft, U.S. and Canadian rescue teams already have saved a dozen lives that would otherwise have been lost. The launch of the U.S. NOOA-E satellite will cut in half the time victims must wait to be heard by a passing satellite. The NOAA-F and G satellites will carry search and rescue equipment, and it is expected that NOAA-H, I, J and future polar-orbiters will do so as well. Canada, France, Norway, Sweden, the United Kingdom and the USSR are participating.

ENVIRONMENTAL DATA AND INFORMATION MANAGEMENT

The second major area of NESDIS responsibility is environmental data and information management. NOAA gathers global data about the oceans, continental landmasses, air, space and sun and their interactions in order to describe and predict the state of the physical environment. Other agencies, organizations and individuals, domestic and foreign, collect similar data for their own purposes, and share some of them with NESDIS national data centers, which incorporate them into the national environmental data-base. Findings are shared with the military for national defense applications.

Last year, NOAA consolidated three formerly separate national data-bases (climatic, oceanographic and geophysical solar-terrestrial) into a single Data Management User Services (DMUS) facility at the National Climatic Data Center in Ashville, N.C., overcoming many system deficiencies, boosting productivity and cutting data-processing costs. It also provides a base for development of a long-term, operational system to be implemented in 1985 that will substantially upgrade NOAA/NESDIS support for the national economy, food and energy industries, and military by providing new products and services, and better access to an integrated, multidisciplinary, national environmental data-base.

During 1982 NESDIS began issuing weekly maps of temperature-related energy-consumption estimates over national facsimile circuits. This is the first time that quantitative estimates of the impact of weather and climate anomalies on local, state and national residential energy-use have been routinely dissseminated to the public. The maps portray current and furtur energy use in terms of departures from the long-term trend and from the preceding year. The energy assessments are based on NESDIS models that incorporate current weather-data and long-range temperature projections from the National Weather Service, as well as historical data from the NESDIS Climatic data Center.

Last year, the NESDIS National Geophysical Data Center developed detailed maps of geothermal energy sources for Arizona, Kansas, Montana, Nebraska, North Dakota, Oregon and Washington. Additional maps are planned. NESDIS previously had published maps for the western United States, Alaska, Hawaii, Gulf Coast, California, Colorado, Idaho, New Mexico and Utah. This is a cooperative project of NOOAA, DOE, U.S. Geological Survey and state agencies.

In cooperation with industry, NOAA's National Climatic Data Center recently completed processing Navy ocean wave-model spectra into a readily usable, general purpose data set. The project was funded by a consortium of private companies, the U.S. Navy and NOAA to make wave data available in useful form at greatly reduced cost. The data consist of ocean-wave statistics for the North Atlantic and North Pacific produced by the Navy for specialized defense applications. Although not generally useful in their original form, when converted to standard time-series they provide better climatological information than any previously available for the northern oceans. Such statistics used to cost up to $100,000 to calculate; now it's $100 or less.

Consortium members include Amoco, Cities Service, Exxon, Gulf Oil, Marathon, Shell Oil, Union Oil, Ocean routes (consultant), the Depatment of Defense and the NESDIS National Climatic Data Center.

Last year, at the request of the Federal Reserve Board, NESDIS began providing data on the impact of weather on U.S. industrial productivity to be cranked into the Board's monthly Industrial Production Index. NESDIS also provided environmental data and information to the Bureau of Labor Statistics (BLS) for use in their national construction-industry employment model, which has been found to be weather sensitive.

At the request of the Financial Planning and Management Division of the Bureau of Labor Statistics, NESDIS also is cooperating with BLS in investigating weather relationships to average hours worked per week in the construction industry. BLS found a significant relationship between average weekly hours worked and variations in winter temperature. The objective of the project is to provided weekly assessments and, possibily, forecasts of climatic impacts on average construction hours per week.

Last year, the NESDIS Assessment and Information Center published a study of the impact of anomalous weather events on the economies of 265 countries and subcountry regions during 1981—an unprecedented number. In technology transfer, the NESDIS Center used precipitation estimates from polar orbiting and GOES staellites to evaluate the effects of weather variables on crops in 50 developing countries in Africa, Central and South America, and Asia in direct support of Agency for International Development (AID) disaster assistance programs.

NESDIS has also increased the number of developing areas of the world for which it prepares weekly economic assessment cables. Transmitted via Department of Commerce and Department of State telecommunications networks to embassies and missions within host countries, the cable evaluate the economic impact of weather in 133 political or climatic regions in Africa, 109 in South and Southeast Asia, 48 in South America and 24 in the Caribbean Basin. Twenty-five regions in Central America and 26 in Mexico will soon be added to the list.

FISCAL YEAR 1984 METSAT BUDGET—$161.304 MILLION

The budget for NOAA's meteorological satellite program is sufficient to accomplish the basic program objective—the regular and reliable collection of quantitative environmental data on a global scale. The only enhancements requested are (1) for the implementation of an operational program to improve weather forecasting and warning services through the use of VAS of atmospheric-sounder data from geostationary satellites, and (2) for modification of polar satellites so they can operate in an orbit that will provide more satellite data for National Weather Service numerical prediction models. A third item of interest, while not a new initiative in the sense of items one and two, will be the procurement of the follow-on series of GOES spacecraft.

An increase of $5.5 million is requested to implement an operational VAS atmospheric-sounding capability. As mentioned earlier, the improved instrument can more sharply depict the vertical distribution of temperature and moisture patterns in various layers of the atmosphere. It also can be used to derive temperature profiles over space and time scales more compatible with NWS forecast model data-collection times than those provided by the current polar-orbiting satellite system. VAS is highly reliable, and a new dimension will be added to NOAA's weather services when it becomes fully operational. Improving weather services, especially the dissemination of severe-weather watches and warnings, is a major NOAA goal.

The $5.5 million will be used to augment ground equipment, which at present can receive and process data from only one of the two GOES satellites and only experimentally. The equipment will be installed at the Wallops Island Command and Data Acquisition Stateion and the Data Processing Facility in Suitland, MD. and will ensure the reliability necessary for a fully operations system.

The second increase, $1.0 million, is proposed for modifications to future polar-orbiting satellites, to allow them to orbit at higher solar angles. That will permit data acquisition at times closer to the needs of the National Weather Service for data from the eastern Pacific basin, a prime input need for NWS numerical prediction models, which are designed with strict temporal cut-off values. Input data for this model are of greatest utility when collected within 3 hours of the startup of NWS operational forecasts (noon and midnight Greenwich time). Additional satellite input is most valuable from data-barren regions, especially where atmospheric conditions will directly affect weather over North America during the succeeding 48 hours. Satellite observations from the northeastern Pacific are of notable importance on both counts.

The third increase of $7.2 million is to initiate procurement of the next series of GOES spacecraft. There is a minimum five-year procurement, fabrication and test cycle from contract award to launch readiness in a new series. A launch in fiscal year 1989 is necessary in order to continue a two-spacecraft program without a break in service. This new series will be the first launched by the space shuttle and will be procured through competitive bids.

This budget permits a continuation of projected funding levels for the geostationary satellite program at $72.228 million, a decrement to one satellite in the polar-orbiting satellite program (to a level of $39.33 million) and savings of $1.5 million in fiscal year 1984 resulting from the consolidation of satellite field service stations with National Weather Service operations. Further savings of $1.375 million will result from conversion of satellite image-generation systems from photographic reproduction to electronically generated imagery. The NOAA METSAT budget includes:

	Millions
Spacecraft procurement	$67.328
Launching costs	36.847
Ground system procurements	7.386
Subtotal	111.561
Spacecraft control and data acquisition	16.200
Data processing and dissemination	16.200
Systems development	1.800
Supporting research and applications	8.700
Management, administration and overhead	6.843
Total	161.304

GOES SYSTEM BUDGET—$72.228 MILLION (INCLUDED IN FIGURES ABOVE)

The fiscal year 1984 budget request maintains the two-satellite configuration for GOES, critical to obtaining timely images of the movement of destructive weather systems over much of the Western Hemisphere. Although the budget reflects an increase of $9.369 million over the fiscal year 1983 figures, the amount represents a continuation of procurements already underway, not an increase over the previous rate of expenditure. In summary, the GOES budget request includes:

$4.1 million for in-orbit performance incentives for the manufacture of GOES D, E and F,

$37.698 million to continue the procurement of GOES G and H spacecraft, which began in fiscal year 1982,

$7.2 million to initiate the procurement of the follow-on series of GOES spacecraft.

$18.759 million for funding of launch services for GOES G and H spacecraft, to be launched in fiscal year 1986, and

$4.471 million for ground-system changes required for compatibility with new NASA communications networks, which NOAA relies on for spacecraft launches (fiscal year 1983 continuation).

POLAR SYSTEMS BUDGET—$39.333 MILLION (INCLUDED IN METSAT FIGURES)

The fiscal year 1984 budget request for the Polar system is $4.308 million less than the fiscal year 1983 level. This represents a decrease of $3.273 million for nonrecurring ground-system procurements and a net decrease of $1.035 million for spacecraft and launching procurements. This decrement comprises one decrease (−$2.035 million) and one increase (+$1.0 million).

The decrease in the polar orbiter from two operating spacecraft to one spacecraft will result in a saving of $38.0 million in 1983 and an additional $21.0 million in 1984 compared to the cost of maintaining a two polar orbiting satellite system. This change will result in a total savings of $375 million over the next ten years.

Our experience over the past several years has demonstrated that the likelihood of the loss of polar satellite coverage even for a few months, is minimal and would occur only with the unlikely event of failure on launch or premature failure in orbit. The primary function of the polar orbiting satellite is atmospheric soundings for use in the national meteorological center prediction model. The increase of $1.0 million for proposed modifications of the polar orbiting satellite to allow the satellite to orbit at an equatorial crossing time (near noon orbit) will improve the timeliness of the polar sounding data and will offset the loss of data from the conversion to a one polar satellite system in 1985. Additionally, the operational use of the VAS sensor will provide much of the sounding data and on time scales much smaller than those associated with the current polar orbiting satellite system or the radiosonde network. Further, the fiscal year 1984 request represents a $6.0 million reduction from last year's estimate because of a decision to launch NOAA H and I on the Atlas instead of the Space Transportation System (Shuttle).

In summary, the Polar request embraces:

$3.7 million to continue integration and testing of NOAA G and D.

$14.63 million to continue procurement of NOAA H and I sensors and initiate procurement of NOAA H and I spacecraft.

$18.088 million to continue refurbishing of Atlas F launch vehicles.

$2.915 million to ensure operational effectiveness of the data-processing system.

LANDSAT—$23.536 MILLION

NOAA is requesting an fiscal year 1984 appropriation of $23.536 million to support operation and management of the U.S. Landsat system. The total cost of Landsat operations in fiscal year 1984 is $39.536 million; the difference represents Federal agency reimbursements for Landsat data. The budget request includes an increase of $4.037K to support enhanced Thematic Mapper (TM) data processing, which will produce 50 scenes per day versus 12 at present. NOAA expects to recover the total cost of Landsat operations from data sales to government and non-government domestic and foreign users. Thus, additional Federal expenditures will be reflected in the budgets of Federal user-agencies, including the Departments of Agriculture and Interior and national security agencies.

On January 31, 1983, NOAA assumed from NASA responsibility for operation of the new Landsat D system. Funds from this request will be used to contract for management of the ground system at the Goddard Space Flight Center, to reimburse the Department of the Interior's EROS Data Center at Sioux Falls, South Dakota, to pay for archiving of Landsat data and retrospective and other data services, and to defray NOAA management costs until private sector ownership is accomplished.

LANDSAT D′ STORAGE—$5.8 MILLION

Since Landsat D′ is not scheduled for launch until 1985, the satellite must be stored and checked periodically between assembly and launch. Moreover, it is necessary to maintain minimally staffed project teams at NASA and industrial contractor facilities. These groups constitute the nucleus of the launch team for 1985.

ENVIRONMENTAL DATA AND INFORMATION SERVICES ($22.313K)

The fiscal year 1984 budget is sufficient to provide global data and information products and services in the atmospheric, marine, solid earth and solar-terrestrial sciences to meet the needs of users in commerce, industry, agricultural science and engineering, the general public, and Federal, state and local agencies.

The objectives of the NESDIS Environmental Data and Information Service are to boost productivity and upgrade support to the national economy, food and energy industries, and the military services by developing an integrated multi-disciplinary national environmental data-base; to improve the quality, accessibility, value and utility of environmental data and information files; and to improve environmental data products and services, including assessments of the impact of environmental fluctuations on the national economy.

The fiscal year 1984 budget request includes a proposed decrease of $478,000 and one position for climatic data services vis-a-vis the fiscal year 1983 continuing resolution. Despite this reduction, we will continue to improve the quality and accessibility of current and future climatic data files.

NOAA is also requesting a decrease of $2.848K and 20 positions in Assessment and Information Services, continuing its development of a more efficient management system for the NOAA Library collection. $1.046K will be saved by reducing or terminating less critical documentation and information activities such as free literature searches, staffing for internal library services, purchase of books and periodicals for offices as opposed to library stacks, and administrative staffing. The remaining $1.802K will be saved by cutting direct funds supporting core library services, but we will assess client offices to support these services.

COMMERCIALIZATON OF CIVIL EARTH OBSERVING SATELLITE SYSTEMS

The Administration has long been considering the merits of a transfer of NOAA satellite operations to private control. On March 8, the President announced his decision to transfer the nation's civil operational remote-sensing satellites to the private sector, including the present land observing system (Landsat) and weather satellites, as well as the responsibility for any future ocean observing systems. The transfer will be accomplished by a competitive process which will allow private firms to enter bids on land or weather satellites as separate systems, or to enter single bids for both systems.

NOAA is not dismantling, or selling any part of, the National Weather Service. The satellite system is a part of the National Environmental Satellite, Data and Information Service. It serves not only the Weather Service but various parts of NOAA and a great many other clients as well.

The agency is conducting a study of present and future Weather Service operations under a contract with Booz-Allen-Hamilton designed to chart the Service's course through the rest of this century. NOAA's goal is to produce a highly professional, cost-effective service which will distinguish between functions the Federal government should undertake and those which properly belong to the private sector.

NOAA is also conducting separate studies under OMB Circular No. A-76 (Policies for Acquiring Commercial or Industrial Products and Services Needed by the Government) to determine which NOAA functions should stay inhouse and which should be contracted. This study embraces all of NOAA and is not directed specifically, toward any single component. A maximum of 3,500 positions may come under review throughout the agency, but it is obvious that the net change will be far smaller.

[The following information was subsequently received for the record:]

QUESTIONS BY SENATOR HOLLINGS AND THE ANSWERS THERETO

NOAA'S ATMOSPHERIC AND SATELLITE PROGRAMS

Question. You have mentioned your intentions to conduct an "A-76" review of some 3,500 positions at NOAA to see what activities could be done by outside contractors.

What criteria will you be using to guide your decision whether a given activity should be performed by in-house employees or by contractors? Please provide copies of internal documents bearing on this A-76 review, including your latest inventory of positions to be studied (for each Assistant Administrator, break down headquarters positions to the branch level of regional positions by location). When do you expect to complete this review?

Answer. NOAA intends to use the criteria contained in OMB Circular A-76 to determine whether activities should remain in-house or be performed by contractors. The Circular is under revision and we will use the criteria contained in the Circular in effect at the initiation of individual studies unless instructions to the contrary are received from OMB. Both the current and the proposed Circulars give clear descriptions of those activities which are "governmental functions" and, therefore, must be performed in-house. All other activities are subject to cost comparison. The decision on these activities is made using the criteria found in the Circular.

Attached are copies[1] of the correspondence documenting the internal review process used to ascertain the current A-76 inventory of commercial activities. Each review lasts approximately twelve to eighteen months. The first reviews will begin in May 1983, and the last reviews will begin in January 1984. We expect all reviews to be completed by July 1, 1985.

Question. In 1981 the Deputy Secretary of Commerce initiated an effort to create a centralized computer system within the Department. At that time we were assured that the unique computer systems at NOAA for the storing, analysis, and retrieval of scientific data would be untouched by this centralization.

Which computer systems at NOAA have been affected by the centralization and if so, how have they been affected?

Answer. The NOAA scientific computer center at Suitland was not affected by centralization. The 1981 centralization concept has resulted in payroll and personnel systems supporting all the Department of Commerce being converted to the NOAA Univac system. Further, EDA is currently transferring their Univac workload to the NOAA Univac. The additional workload will not adversely impact programmatic workload already on the Univac. In addition, the Department has initiated a plan to consolidate the NOAA ERL computing workload, now processed on a CDC 750 Computer located in Boulder, and the NBS computer workload, now processed on a Univac 1100/82 at Gaithersburg, Md., into a single centralized Class VI computer to be located at Gaithersburg.

Question. In your proposed $3.5 million for the AFOS system, you mention $2.5 million in savings for phasing out the backup teletype and facsimile systems and $1.0 million for savings due to management and equipment reconfiguration.

What do you have in mind when you refer to "management and equipment reconfiguration"?

Answer. The reduction of $1 million in communications support will be achieved by a variety of actions involving reconfiguration of circuitry, introduction of more modern communication technology, and acceptable reductions in redundancies within the overall communication system. It is expected that competitive procurements made possible by the restructuring of telecommunication services will result in some lowering of communication costs, particularly for national systems. The conversion of land line systems to satellite communications will be continued where technically and economically justified. Increased use of multiplexing techniques will also result in some savings. Cost reductions will result from reducing the level of backup available within the system. It is expected that these actions will result in an annual savings of $1 million.

Question. How soon do you expect to have the new doppler radars in place, assuming you obtain the NEXRAD funding you have requested? Where will these radars be located and for what reasons have the sites been selected?

Answer. The timetable for installation of the NEXRAD system depends on the level of resources available during the development (validation) phase. Under the current constrained plan, installation of the first operational unit is scheduled in January 1988 and the program will extend through 1992 as shown in the following schedule.

Nexrad production schedule

Calendar year:	*Production*
1988	10
1989	35
1990	48

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[1] The copies are in the committee files.

1991	48
1992	18
Total	159

Exact locations for each radar have not been selected. In general radars will be sited to provide full area coverage of the continental United States and in Alaska, Hawaii and Puerto Rico with a limited capability to provide overlapping coverage in those areas most seriously threatened by tornadoes and hurricanes. Site surveys to select radar locations will begin in the summer of 1983 and will be phased over a 50-month period. Principal criteria for site selection are as follows:

1. Proximity to current or planned weather service forecast offices.
2. Proximity to designated high priority commercial airports.
3. Proximity to designated high value military air-bases.
4. Continental U.S. area coverage.
5. Limited redundant coverage in high threat tornado and hurricane areas.
6. Minimum number of radar systems required.

Question. In your statement you say "the likelihood of the loss of polar satellite coverage . . . is minimal and would occur only with the unlikely event of failure on launch or premature failure in orbit."

Given the frequency of past launch failures and periodic premature failures in orbit, why do you view such prospects as "unlikely"?

Answer. The NOAA one-polar satellite proposal was accepted by the Administration after a detailed study of available options that would allow NOAA to reduce its budget requests.

The likelihood of service discontinuity is believed to be low. The Atlas launch vehicle has a success rate of approximately 90 percent: one NOAA satellite (B) failed to achieve useful orbit. Premature failure, though always a possibility for a number of reasons; is less likely for a mature design such as the Tiros/NOAA satellite system than for a new series such as GOES D (the first of the series procured from the Hughes Aircraft Company) or Landsat D. This is normally true because design deficiencies which are found in early satellites are corrected for subsequent ones.

To guard against discontinuity, the one-polar orbit program has been structured so that launches are scheduled in anticipation of failure. The design lifetime of the satellite is 20 months. The one satellite launch scenario takes this into account by scheduling a launch each 18 months whether the in-orbit satellite shows signs of degradation or not. It is planned therefore to have a satellite in orbit, checked out and ready for service at the completion of the predecessor satellites design lifetime. In-orbit we have seen extended life from each of the already launched Tiros/NOAA satellites. Should we suffer a launch failure in the one polar system, it is hoped that the then in-orbit satellite will operate in the manner of NOAA 6, which is being replaced after 3½ years in-orbit, and thus provide service through the period before the next satellite is ready for launch.

The Atlas history (90 percent success rate) coupled with the high expectation that a satellite in-orbit at the time of a launch failure will operate for the extended period demonstrated by previous satellites, leads us to the conclusion that the potential for loss of service continuity though not zero is an acceptable risk.

Question. One witness has suggested that flood insurance rates reflect the degree of flood forecasting and warning services and community preparedness programs in the area. What is your view of this suggestion?

Answer. It is our understanding that flood insurance rates currently reflect only the probability of flooding at a location based on a statistical analysis of flood experience at a particular location. Although rates do consider a range of flood probabilities from the 10-year to the 500-year events, the rates do not include the presence or absence of flood forecasting or warning services.

Question. It has been noted by several witnesses that the weather observations collected around the country, including those collected by DOD and FAA, lack uniformity and completeness, and that weather forecasting has been hurt by this.

Do you agree with this concern? And do you think observation collection could be improved by the use of a uniform national code of observations?

Answer. This concern has little operational impact. The reason for this is that weather observations are already standardized into one of two codes. These are the U.S. hourly and special surface aviation and the worldwide 3- and 6-hourly synoptic codes. Both codes are stored and decoded into a fixed format and this data along with other types of data is then computer processed into guidance forecasts. Thus the guidance forecast system is based upon those sites that provide complete observations. As long as the number of these stations remains constant, there should be no operational impact. Locally prepared and specialized forecasts can be based upon existing observations from either code.

From a meteorological standpoint, the ongoing loss or degradation of observations is potentially more significant than the impact of differing codes. This loss or degradation of observations was aggravated by the reassignment of FAA personnel to achieve the higher priority restoration of the Air Traffic Control system. With fewer personnel, some FAA facilities have been closed during the night, or altogether, which has resulted in the loss of observations.

While the impact of this situation on the guidance forecasts provided by computers is acceptable, some local forecasts must be either delayed or based upon incomplete information. These local forecasts must contain more detail and therefore the detail and information of the observation must be available. At times, a missing report, or a missing or incorrect part of the observation can be critical to the forecast.

To compensate for this, the FAA and the NWS are looking for affordable solutions to these problems in the form of alternative staffing (e.g., local operators and local and state government participation) and automation of some or all of the observing functions. The major obstacles to these approaches are the labor intensiveness and resultant cost of manually prepared observations and the expense and technical difficulty of achieving a full range of data comparable to manual observations from an automated system.

Question. The Administration's budget includes a phase-out of the NOAA Space Environmental Services Center, on the apparent theory that NASA or DOD will take over the center.

What commitment has been received from NASA or DOD on the continuation of the functions carried on by that center?

Answer. No commitment has been offered by either NASA or DOD to continue the national space environment forecast and warning services. NOAA jointly with the U.S. Air Force provides a common service under the provisions of OMB Circular A–62 to meet the needs of the Departments of: Agriculture, Commerce, Defense, Energy, the Interior, and Transportation; National Science Foundation; Voice of America; and NASA. DOD and NASA representatives have stated that their mission responsibilities would preclude offering a common service.

At the request of the Federal Coordinator for Meteorological Services and Supporting Research, a National Plan for Space Environment Forecasting and Supporting Research is being prepared by the Committee for Space Environment Forecasting. The draft of this National Plan currently is being reviewed by all of the agencies. Publication date for the plan is 1 July 1983.

Question. The Administration proposes the termination of agricultural weather services and a 50 percent cut in fire weather services. Last year when similar reductions were proposed, the NOAA spokeman said NOAA woud be exploring ways that agricultural groups and other users could band together to make private services affordable.

Has NOAA received any ideas for such groupings? If so, please describe these ideas.

Answer. Ideas that have been considered for agricultural user groups fall into three categories: single commodity grower cooperatives, regional agricultural associations, and local and regional governments. Grower members in single commodity cooperatives—say, a citrus mutual—could collectively pay for exclusive private weather services through pro rata increases in their individual dues. Exclusive private weather services focused on several commodities could be financed in a similar manner through regional association membership fee increases, e.g., farm bureau federations. Non-exclusive private weather service for certain geographical areas—as opposed to services to a select membership—could be financed by applying a "box tax" at the wholesale level, or by other tax or surcharge schemes administered by the local or regional government.

Federal and state fire weather service users as well as private forestry companies would continue to use public forecasts, supplemented with additional information from the Federal or state agencies involved in fire protection and land management.

Question. As population expands, and more development occurs, it would seem that the risk of flood increases.

In light of this, why does it make sense to eliminate your Regional Hydrologists?

Answer. Provisions of flood forecast and warning services is a high priority NWS activity. These services will not be reduced in fiscal year 1984. The Regional Hydrologist, however, have primarily performed coordination and managerial duties; we believe these can be adequately and more efficiently carried out by the Regional Offices, River Forecast Centers, and the Office of Hydrology.

Question. The budget proposal calls for a reduction in the NOAA weather wire extension so that small communities will have to foot the entire bill for extensions.

Won't this mean that rural communities will lack the disaster warning system that larger communities possess?

Answer. No. There should be no significant change in the warning services available in a given rural community. It is estimated that over 90 percent of the U.S. population is not covered via the Mass News Disseminators (MND) who are being served by the NOAA Weather Wire Service (NWWS). Furthermore, NWWS will continue to be available to MND's in small communities desiring the service. Any new subscribers would have to pay the costs of a spur line from the present backbone circuit.

In addition to the NWWS, weather warnings are also disseminated by NOAA Weather Radio broadcast and telephone "fan-out" from the responsible NWS office and by Press Wire Services.

Question. Last year, the NOAA budget proposed a $27 million decrease to reflect a transfer of funding for pilot weather briefings to the FAA Trust Fund. However, the fiscal year 1983 appropriation provided no funding under the NOAA or FAA budgets. In this year's budget you do not reflect the pilot briefings as a reduction but are continuing to carry them on.

What are your intentions with respect to funding for pilot briefings for fiscal year 1983 and fiscal year 1984?

Answer. The 1983 continuing resolution directs NOAA to continue to provide aviation weather services to the FAA at the current level of activity, with the assumption that NOAA will receive reimbursement for the services from the FAA Trust Fund, or otherwise be provided with the funds in the fiscal year 1983 Supplemental Appropriation Act. The conferees directed NOAA and FAA to conduct a joint study to recommend the future mechanism for funding the pilot briefings. The study will be transmitted to Congress as soon as it has been reviewed within the Administration.

Senator GORTON. We will call on our next witness, Dr. Knauss. Well, Doctor, you are here under a sentence of death, asking for a commutation of that sentence. You may proceed.

STATEMENT OF DR. JOHN KNAUSS, CHAIRMAN, NATIONAL ADVISORY COMMITTEE ON OCEANS AND ATMOSPHERE

Dr. KNAUSS. Thank you, Mr. Chairman.

I appreciate your invitation to appear again before this committee, this time to present NACOA's views on those of NOAA's weather and marine service programs which we have examined during the past year or so.

I have a statement which has a few appendices to it, and I would like to summarize the statement.

Senator GORTON. Fine. The entire statement and its appendices will be included in the record.

Dr. KNAUSS. I would like to start by reading a comment I made here 2 weeks ago relative to NOAA's ships. The proposed reduction from 22 to 12 ships cannot be ignored. It also signals a major reduction in NOAA's ocean and fisheries research now and in the future. Ship reduction is a proposal that needs serious congressional scrutiny. Once removed, restoration will be most difficult.

The United States cannot afford to do less than its best in securing its ocean future for its citizens. The Federal Government has a prime role in this.

If I could turn next to the weather services, it is NACOA's view that much of the equipment and facilities necessary to support and advance atmospheric science research, and indeed the whole business of weather, are becoming obsolete. We recommend high priority to the development and procurement of the next generation of weather radar since we are convinced that a network of such radars could be expected to reduce loss of life and property damage resulting from tornadoes, hurricanes, and flash floods.

NOAA's proposal to fund the development of NEXRAD is welcome.

Our report on NOAA's river and flood forecasting services is presently at the printer, but let me note one area relevant to NOAA's proposal for fiscal year 1984. There is a need to augment the rain gauge data collection network which consists largely of volunteer observers. We are impressed with the local community flood warning systems that have been implemented in more than 650 communities.

Stimulating, educating, training, and guiding local activity are among the things being done by NOAA's hydrologists. For this reason, the fiscal year 1984 proposal to reduce NOAA's regional hydrologists is of some concern.

One of the most pressing problems in weather service today is the rising cost of high technology. As a result of pressures to reduce Federal funding and personnel, we are concerned about the ability of weather services to maintain adequate capabilities for its forecasting and warning responsibilities for public safety.

For this and other reasons, we examine the situation in some depth in our report "The Future of the Nation's Weather Services". The weather services of the United States are an extremely complex, multi-institutional mix of public and private services. NOAA's National Weather Service is the central agency and the key to the services provided to the public, but it is not the sole or even the major agency.

It represents less than one-half of the total resources invested. There are nearly 18,000 people in the Federal Government providing weather services. The National Weather Service has about 5,000 of these. Only one-fourth of the weather service observations are taken by the National Weather Service. Others are taken by Department of Defense, the Federal Aviation Administration, and other agencies, and by more than 12,000 volunteer observers who report daily weather observations.

Everyone involved in the weather business—TV forecasters, private forecasters, DOD—all depend on a systematically coordinated observational system, data collection, analysis, transmission, and so forth. Everyone depends on a strong central weather service represented by the National Weather Service.

A full examination of weather services must consider the FAA, DOD, and other agencies as well as the private sector contributions to the Federal complex. We in NACOA are concerned that this perspective has not been adequately recognized by those who propose to adjust the budgets. The National Weather Service is the key to the entire system, and it is fully dependent upon the entire complex.

The question of who provides specialized services is a difficult one. In our report, we distinguish between two types of specialized services, those that serve broad sectors of the national economy and the specialized interests of other Federal agencies, and those that are tailored to provide for the needs of specific clients—corporations, or individuals.

The former include agriculture, aviation, those in marine activities, and so on. Examples of the latter are public utilities, a company that provides ship routing, a farmer, or a major construction firm.

It is our view that the Federal Government should provide weather services to broad sectors of the economy. We believe it is in the national interest to do so for the ultimate benefit and safety of all the public. The private sector, however, should provide specialized services to individuals and corporations.

NACOA's report on "The Future of the Nation's Weather Services" includes these and a number of other important considerations regarding the Nation's weather services. I have limited myself to discussing those at issue in NOAA's fiscal year 1984 budget. However, for your information, I have appended a summary of all the findings and recommendations from our report to this statement.

Finally, Mr. Chairman, let me turn to the future of the National Advisory Committee on Oceans and Atmosphere. I do not intend to review our work. Our interests and activities are detailed for your information in the second attachment to this statement.

Mr. Chairman, NACOA is an 18-member citizen advisory group. It is chartered to provide public advice to Congress and to the President on the whole atmospheric and ocean picture across all agency lines, not just NOAA, through our continuing and selective reviews.

As the political and bureaucratic scene has evolved over the past few years, we believe that NACOA is the only game in town with this access, authority, and responsibility. We believe that we have done our job well, and are an asset to the Congress and to the President, even when we may present views not fully in accord with the main line of policy.

We believe that NACOA should be supported by a multiyear authorization and at a funding level to maintain staff and operations at levels which have been found useful and effective over the last several years.

Thank you, Mr. Chairman.

Senator GORTON. Doctor, you remember that Mr. Winchester stated that NOAA had not made any plans for the vessels it was going to lay up if its proposals were accepted. Do you have any idea what will happen to those vessels which NOAA anticipates replacing with chartered ships?

Dr. KNAUSS. No, I do not, sir. I know that if you lay them up with the idea that you may bring them back into service, you are not going to save very much money unless you lay off the people that go with them. If you lay up the ships and essentially dispose of them, as well as lay off the people that are involved in running the ships, then you do indeed save considerable money.

However, once having done that, if the administration should decide that the system of charter is not working successfully, there would be an initial expense of bringing new ships on line, hiring new people. It will take time to do these things.

Senator GORTON. Do you believe that support of atmospheric research and services provides benefits to the Nation exceeding the expenditures which we undertake for them?

Dr. **Knauss**. Absolutely, sir. There is no question that our ability to forecast weather, forecast changes in weather, indeed provides very real economic savings to this country, as well as savings in lives and property.

Senator **Gorton**. By a fairly wide margin over our expenditures?

Dr. **Knauss**. I am not familiar with any specific cost-benefit analysis that has been done on this, although I suspect some have. But I would be quite confident in saying yes.

Senator **Gorton**. Mr. Winchester has suggested that organizations such as the National Ocean Industries Association will provide the advice the administration requires to operate NOAA. Can you give me your response?

Dr. **Knauss**. Well, I have great admiration for NOIA and all the people in it, but it is an industrial organization. Some people might refer to it as a lobby. I think it would be more like asking advice from the Sea Grant Association or any other specialized organization here in this town to provide advice.

I think the advantage of NACOA is that we are broadly representative. We have some very difficult fights in our own organization before we come out with our recommendations. And we represent a broad spectrum of public interest.

Senator **Gorton**. You say that all the Federal elements in the weather services need to be considered. Would you suggest some overall coordination functions for NOAA in order to avoid gaps and overlaps in expenditures?

Dr. **Knauss**. Yes, sir. The reason I am hesitating is because my it is impression that there is an OMB circular which gives NOAA that authority at present. Perhaps I could give that answer more fully for the record, sir.

Senator **Gorton**. We would be pleased to get that answer.

[The material referred to follows:]

NACOA is concerned that a possible end result and unintended consequence of terminating agricultural weather services or other specialized services by NOAA will be the growth of multiple and separate Federal weather services in the various departments as they learn they can no longer count on NOAA for weather services to meet their mission requirements. The Departments of Agriculture, Interior, Transportation, the Environmental Protection Agency, and NASA will need to meet their higher costs for given level of weather services in the future. This kind of concern 20 years ago led to the publication of OMB Circular A-62 which sought to avoid duplication of effort and ensure a strong central weather service.

OMB Circular A-62 led to the establishment of the Federal Coordinator for Meteorological Services and Supporting Research, presently a senior-level NOAA official. the Office of the Federal Coordinator is staffed by senior-level employees from several agencies.

We believe that the policies represented by OMB Circular A-62 should be supported to prevent the establishment of multiple weather services.

Senator **Gorton**. Did your NACOA study of the National Weather Service find any evidence that public safety warnings have deteriorated as a result of continued budget and personnel reductions in the Weather Service?

Dr. **Knauss**. One that I can think of off the top of my head is that with respect to some of the airports that are used for alternate landing sites. The reduction in weather service at those has reduced the number of alternative landing airports. There may be other examples, but that is the only one that comes to mind at present, sir.

Senator **Gorton**. Your study argued against turning over so-called specialized weather services—agriculture, aviation, fire—to the private sector. Why? Do you think the private sector might be able to supply these services adequately at some future time, or is it likely always to be more cost effective for them to be provided by the Federal Government?

Dr. **Knauss**. Our report did make suggestions that there was an increased role for the private sector. We feel very strongly that there is, indeed, an increased role for the private sector in providing these specialized services. Where we differ from what I heard Mr. Winchester say, is that we also believe there is a role for the public sector, for the National Weather Service, to provide broad-gaged specialized services to large areas of agriculture, to the Forest Service and so forth.

Also, we have another concern. When we interviewed the various representatives from the Department of Agriculture and other agencies and asked what would happen if these weather services were reduced or abolished by NOAA, we got the impression that one way or another, they would find a way to provide the necessary weather services to their clients.

So, I think we would see a decentralization of the weather service within the Federal Government. It is our view that this is not in the best interest of weather services for the Nation. We think it is in the best interest to have those services centralized.

Senator **Gorton**. Thank you, Dr. Knauss.

Senator Exon?

Senator **Exon**. Thank you, Mr. Chairman.

Doctor, I welcome you here. I noticed in your statement that you said the proposed reduction from 22 to 12 ships cannot be ignored. For a layman like myself, would you please explain briefly what those ships do? Are they designed basically for overall weather reporting stations, to predict weather, or are they more aimed at weather as far as it affects the seas and ships at sea?

Dr. **Knauss**. Most of those ships are, involved in NOAA's National Marine Fisheries Service. They do fisheries research, and that is not the same as doing fishing. One of my concerns is whether or not it will be possible to use chartered fishing boats to replace fisheries research vessels.

If you want to do experimental fishing, which sometimes is done by the National Marine Fisheries Service, then you can perhaps use a chartered vessel. But if you want to go out and do at-sea laboratory work and so forth—and I have spent enough time on research vessels in my life to know that ships of opportunity are very expensive—you need a research vessel that is properly designed for the work you intend to do.

Senator **Exon**. In your statement you say, "It is not comforting to suggest that contract vessels can do the work." I would certainly agree with you, from what I know of the role that these ships play.

Now, I know we are going to have a separate hearing on this, but while you are here I would like to ask your opinion of the recent proposals by the President to sell to private industry some of our satellite weather facilities at the present time. It seems to me that this falls in the same general area, but of course much broader.

Dr. KNAUSS. We examined this question briefly as part of the background for our report on the "Future of the Nation's Weather Services." Our conclusion was that if the satellites were going to be single-purpose satellites for weather and so forth, it would be best to continue operating them within the Federal Government, particularly with respect to the high value NACOA places on the need for integrated management of the complex weather system.

If, however, the national system develops into some kind of a complex multipurpose satellite system which would include sensors for Earth resources, weather, navigation, and so forth all together, then perhaps there would be some justification in considering operation of such a system by the private sector. At the time we looked at this matter, there was no proposal on the table by the Federal Government for what they were going to do. I have not had an opportunity yet to examine, nor has NACOA, what specifically the Federal Government is planning to do in this matter.

But on the basis of what we do know, we are not very comfortable with the idea.

Senator EXON. I am not comfortable with the idea, and I suspect that most of my colleagues here on the Hill are not comfortable with it. It seems to be more of the rhetoric that we hear coming out of the White House, that somehow we can abandon legitimate Government services to the people of this Nation simply by turning it over to private industry.

Do I understand from your statement, then, that the proposal that was recently advanced to sell our satellites to private industry—and they naturally would expect to make a profit therefrom—was not taken up with your advisory committee?

Dr. KNAUSS. They did not ask our advice on this matter, no, sir.

Senator EXON. Have they up until this time?

Dr. KNAUSS. No, sir.

Senator EXON. Do you expect that they will ask for your advice?

Dr. KNAUSS. I suspect they are not going to ask for our advice, having made the decision.

Senator EXON. Does that seem a little strange to you, that modus operandi, as Chairman of the National Advisory Committee on Oceans and the Atmosphere?

Dr. KNAUSS. Well, they probably have read our report, which suggested that satellites to be operated 100 percent for weather should stay in the Federal Government. Since they made a contrary decision, they probably felt there was no need to come back to us.

Senator EXON. We will take that up at another hearing, I understand, Mr. Chairman, so I will not pursue it any further. I just wish to say that this is one Senator that was shocked at the proposal, and I suspect, regardless of the push from the White House, it is not likely to get very far up here on the Hill.

Let me focus down, now, to something that comes under this general umbrella of pulling back the traditional responsibilities of the Federal Government. The administration has proposed the termination of agricultural weather stations and services and a 50-percent cut in the fire weather services.

Last year, as you know, when similar reductions were proposed the NOAA spokesman said the NOAA would be exploring ways that agricultural groups and other users could band together and make private services affordable. What is the position of your committee on this proposal by the administration?

Dr. KNAUSS. As I said in my testimony, Senator, we think there is a role for private industry, for private meteorology, to provide specialized services to given sectors of the economy. But we also think that there is a primary role for the Federal Government to provide broad-based agricultural forecasts and Forest Service forecasts.

With respect to the Forest Service, in particular as Senator Gorton suggested, the primary buyer or user of fire weather forecasts will be the Federal Government. It seems to me in that case alone it would probably be better to have the Federal Government provide the services.

Senator EXON. One last question on this subject. It seems to me that this administration fails to recognize the critical importance of advanced weather information, particularly to rural areas where livestock, for example, are highly susceptible to abrupt changes in the weather.

I wanted to get your suggestion and comment on one other proposal. The budget proposal by the administration calls for a reduction in the NOAA weather wire extension, so that small communities will have to foot the entire bill for extensions. Will this not mean that rural communities will lack the disaster warning system and other warning systems that larger communities would continue to possess?

Dr. KNAUSS. Although it seems to me that the answer is yes, I would like to answer that in writing, because I am not quite sure what is being proposed with respect to the reduction.

Senator EXON. Thank you very much, and I would very appreciate it if you could for the record give us a more detailed reply to the question as to what the position of you and your committee is. It is of critical importance to a large part of this country.

[The material referred to follows:]

In NACOA's report, "The Future of the Nation's Weather Service," the Committee noted that general weather information is made available nationally serval times a day by NWS both to the general public and to private sector users. Many channels are used. The NOAA Weather Wire Service provides newspapers, radio stations, and television stations with information as a basis for summary weather statements to the public. The NOAA Weather Radio provides continuous weather information to millions with receiving sets. The National Earth Satellite Service provides commercial televison with the now widely displayed satellite images. NWS makes available its weather radar information for display on commercial television. The NWS television program "AM Weather" is distributed to about 200 Public Broadcasting System television stations via communications satellites.

We recognized that the public receives most of the NWS weather forecasts and warnings via the commercial media, and we supported the major role that private enterprise has in the dissemination of NWS weather information. Nevertheless, we stated our strong views that the public should always have access to an "official" source of such information and weather warnings prepared by the National Weather Service.

With respect to the NOAA Weather Wire Service, the current program supports the service without population limitation. In its fiscal year 1984 program, NOAA proposes to limit support of the NOAA Weather Wire Service to communities with populations greater than 10,000. Smaller communities could still have this service by paying for the line connection to the closest supported circuit.

Thus, if other means such as NOAA Weather Radio, were not available, then I would agree that rural areas located far from communities of 10,000 or more inhabitants would lack direct access to "official" NWS forecasts and warnings, unless they paid for the required connection, while the larger communities would continue to have access.

Senator **Exon**. So with those comments and those questions, I thank you very much, Dr. Knauss, for being here today and contributing better to our understanding of what we are doing or are not doing in the future with regard to weather services.

Thank you, Mr. Chairman.

Senator **Gorton**. Senator Trible, did you have any questions of this witness?

Senator **Trible**. Mr. Chairman, I would like to take a moment, if I might, to just comment briefly on the proposal and the budget for the sale of NOAA's land and weather satellite programs. It is an important issue and one that this committee will address in more detail later on.

But I do want to take this opportunity to speak for many of my colleagues who want to let the administration know that the burden of proof is theirs and that we must be convinced that this proposal should be adopted. The burden of proof is a rather substantial one. Our first concern must be for those who rely on the information provided by these satellites: Our farmers, whose livelihood depends upon accurate weather information; our watermen, who must know what weather to anticipate before weighing anchor; and for many others who look to weather predictions as they plan their work and recreation. We have a responsibility to these people to assure that accurate and up to date information is always available.

The Landsat program is also crucial. We rely on Landsat for vital information, including soil conditions for planting, mineral deposits for exploration and mining, and forest management for a host of activities.

To meet the burden of proof, the administration must show in my judgment that accurate, up to date information will be available, that people such as farmers and watermen who rely on weather information have access to this information no matter what their financial situation, that those commercial interests that rely on Landsat data have access to data at a fair and reasonable price, that there is no possibility of an interruption in service due to corporate financial difficulties or labor disputes, that our national security interests, are fully met, and that the savings to the Government are significant and convincing.

This subcommittee will have to be satisfied on all these points in order for that burden of proof to be met.

Dr. Knauss, I know that you are not here today to speak for the administration. But before we move ahead, I wanted to make those observations a part of the record.

We welcome you again today and appreciate your contribution to these proceedings. And I will at this point yield back the balance of my time.

[The statement follows:]

STATEMENT OF DR. JOHN A. KNAUSS, CHAIRMAN, NATIONAL ADVISORY COMMITTEE ON OCEANS AND ATMOSPHERE [1]

Mr. Chairman, I appreciate your invitation to appear again before this Committee, this time to present NACOA's views on those of NOAA's weather and marine service programs which we have examined during the past year or so.

I would like first to reiterate a comment I made here two weeks ago relative to NOAA's ships. The proposed reduction from 22 to 12 ships cannot be ignored. Not only does it signal a decision to eliminate from the Federal civil agencies a major in-house capability to conduct important research to support their missions and responsibilities, it also signals a major reduction in NOAA ocean and fisheries research now and in the future. It is not comforting to suggest that contract vessels can do this work—and there are some that can—when the overall funding to support marine research is also being severely reduced. The balance of the fleet is basically designed for mapping and charting. NACOA has not reviewed this area; we hope to in the coming year.

Ship reduction is a proposal that needs serious Congressional scrutiny. Once removed, restoration will be most difficult. The U.S. cannot afford to do less than the best in securing its ocean future for its citizens. The Federal government has a prime role in this. We have to go to sea to understand the sea.

Considering atmospheric research, it is NACOA's view that some of the equipment and facilities necessary to support and advance atmospheric science research (and indeed the business of weather) are rapidly becoming obsolete. We recommend high priority to the development and procurement of a next generation weather radar, since we are convinced that a network of such radars could be expected to reduce loss of life and property damage resulting from tornadoes, hurricanes, and flash floods. NOAA's proposal to fund the development of NEXRAD, although at a rate which may not complete development until the 1990s, is welcome.

Our report on NOAA's river and flood forecasting services is at the printer, but let me summarize a few areas relevant to NOAA's proposals for Fiscal Year 1984. There is a need to augment the rain gauge data collection network, which consists largely of volunteer observers, by recruiting more volunteers and by installing automated rain gauges in sparsely populated areas and where data reporting rates, higher than now provided, are critical for flood forecasting. We are impressed with the local community flood warning systems that have been implemented in more than 650 communities. Anything that can be done to augment volunteer and local systems, while in themselves not the whole answer, will—we believe—return benefits far beyond any Federal or local costs. Stimulating, educating, training, and guiding local activities are among the things being done by NOAA's hydrologists. For this reason, the Fiscal Year 1984 proposals to reduce NOAA's regional hydrologists—about a dozen or so hydrologists—is of some concern.

During our review, we also looked briefly at the National Fllod Insurance Program. There is currently no relationship between this Federally subsidized program and the availability or absence of flood forecasting or warning services to a community. Effective service could reduce flood losses and thereby the costs of insurance to the community and to government. We believe, therefore, that there is merit in coupling flood insurance rates with the degree of flood forecasting and warning service and community preparedness programs, and recommend a comprehensive study of this by the Federal Emergency Management Agency and NOAA. We believe that, if feasible, this approach could generate some of the resources to support local activity and improve overall flood warning services.

One of the most pressing problems in weather services today is the rising cost of high technology. As a result of pressures to reduce Federal funding and personnel, we are concerned about the ability of weather services to maintain adequate capabilities for its forecast and warning responsibilities. We are concerned about the possible deterioration of public safety warnings because of continued reductions, and the possible disarray of the national framework providing forecasts and warnings if a major restructuring is undertaken without adequate consideration of all parts of the framework and their critical linkages. For these reasons, we examined the situation in some depth in our report" The Future of the Nation's Weather Services."

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[1] The National Advisory Committee on Oceans and Atmosphere (NACOA) is a non-Federal, 18-member body, appointed by the President. Members represent industrial, scientific, and environmental concerns associated with marine, atmospheric, and coastal zone policy. Enabling legislation (Public Law 95-63) mandates that NACOA advise the President and Congress on these matters.

The weather services of the United States are an extremely complex, multi-institutional mix of public and private services. NOAA's National Weather Service is the central agency and the key to the services provided to the public, but if is not the sole or even the major agency; it represents less than half of the total resources invested. There are nearly 18,000 people in the Federal Governmant providing weather services; the National Weather Service has about 5,000 of these. Only one-fourth of the weather observations are taken by the National Weather Service; others are taken by the Department of Defense (DOD), Federal Aviation Administration (FAA), and other agencies and by more than 12,000 volunteer observers who report daily weather observations. Moreover, the principal Federal funding for weather services is not in the National Weather Service, which spends only about 30 percent of the total natioal budget for weather services.

Mr. Chairman, the Nation's weather services are not exclusively Federal, but a combined public and private system. It really does not matter whether one is a television weathercaster, or an employee of a private corporation that provides the highway department with weather forecasts, or a forecaster in the National Weather Service—everyone depends on a systematically coordinated observational system, data collection analysis, transmission, and so on. Everyone depends on a strong central weather service represented by the National Weather Service.

So, Mr. Chairman, for whatever purpose Federal weather services are examined—it is not just a question of NOAA. A thorough examination must consider the FAA, DOD, and other agencies as well as the private sector contributions to the Federal complex. This perspective has not been adequately recognized by those who propose to adjust the budgets. The National Weather Service is the key to the entire system, and it is fully dependent on the entire complex.

The National Weather Service has a problem when it comes to balancing support of its current systems and incorporating new technologies that can vastly improve service to the public. Basically, it is a budget problem. Parts of the system are under tremendous pressure. If we take both the conventional and the new technologies, there will be increased costs.

A traditional issue concerns the number of weather stations. Last year there was a proposal, later rescinded, to close 45 stations. This year there is no proposal to close weather stations, but we do find a proposal to reduce staffs at 25 or so weather offices and to downgrade capabilities at some 20 others.

In the FY 1984 budget, NOAA is proposing to cut agricultural weather services, aviation weather services, and reduce fire weather services. We are concerned that if these cut backs are instituted, services may be supported—probably with greater expense and lesser effectiveness—by other agencies; for example, a separate agricultural weather service, supported by the Department of Agriculture.

The question of who provides specialized services is the thorny one. The legislation establishing the Department of Agriculture in 1890, assigned to the Weather Bureau forecasting responsibilities for the benefit of commerce, agriculture, navigation, and others. We distinguish between two types of specialized services—those that serve broad sectors of the national economy and the specialized interests of other Federal agencies; and those that are tailored to provide for the needs of specific clients—corporations or individuals. The former includes agriculture, aviation, those in the marine activities, and so on. Examples of the latter are a public utility, a company that provides ship routing, a farmer, or a major construction firm. It is our view that the Federal Government should provide weather services to broad sectors of the economy. We believe it is in the national interest to do so for the ultimate benefit and safety of all the public. The private sector, however, should provide specialized services to individuals and corporations.

Aviation weather is a special case. Here we see weather information as part of the infrastructure, similar to runway lights, necessary for aviation safety for which there is a tax levied on users of airports. The proceeds go into the Airport and Airway Trust Fund. The incremental costs of aviation weather services can be and should be funded by that tax.

NACOA's report on "The Future of the Nation's Weather Services" includes these and a number of other important considerations regarding the Nation's weather services. I have limited myself to discussing those at issue in NOAA's fiscal year 1984 budget. However, for your information I have appended to this statement the summary of all the findings and recommendations from the report.

Finally, Mr. Chairman, let me turn to the future of the National Advisory Committee on Oceans and Atmosphere. You and your Committee know NACOA well. We are a citizen advisory group of 18 Presidentially appointed members with a responsibility set forth in legislation to advise the President and the Congress on oceanic, atmospheric, and coastal zone policies and programs. We have been at the forefront of a number of important issues in these areas. I do not intend to review our work in these, since we have made our views known at Congressional hearings and through our reports and recommendations to Congress and to the President. The wide scope of our interests and activities is detailed for your information in the second attachment to this statement.

The members of our group are prominent and senior people in industry, academia, and in local organizations. Our participation in NACOA is not for remuneration but because of our belief in the value of the oceans and atmosphere and the resources which they represent to our citizens—and in the value of an advisory group comprised of a mixture of geographical interests in ensuring adequate consideration of the oceans and atmosphere in national strategies to benefit our economic security and public well-being.

Mr. Chairman, NACOA is a legislated body with formally authorized access to Congress and the President. It is chartered to provide public advice to Congress and to the President on the overall ocean and atmospheric picture, across all agency lines, through its continuing and selected reviews. As the political and bureaucratic scene has evolved over the past few years, we believe that NACOA is the only "game in town" with this access, authority, and responsibility. We believe that we have done our job well and are an asset to the Congress and to the President, even when we may present views not fully in accord with the mainline of policy.

We believe that NOCOA should be supported by a multi-year authorization and with funding to maintain staff and operations at the levels which have been found useful and effective over the past several years.

Mr. Chairman, this concludes my remarks. I would be pleased to answer any questions the Committee may have.

SUMMARY OF FINDINGS AND RECOMMENDATIONS FROM NACOA'S REPORT, "THE FUTURE OF THE NATION'S WEATHER SERVICES"

THE PUBLIC-PRIVATE MIX OF WEATHER SERVICES

1. We find the present national weather system to be a complex mix of interdependent public and private services that has evolved over the years to provide the United States with effective weather services for protection of the public, for its safety and welfare, and for the efficient operation and planning of economic activities. This kind of mix serves the public interest well.

THE NEED FOR NEW TECHNOLOGY

2. We find that the new technology of weather observations, communications, and data processing is indispensible to the advancement of the Nation's weather services. We recommend that policies be adopted which can permit the introduction of this technology without compromising general weather services dependent on more conventional technology.

We believe that the risk of exposure of citizens of the United States to weather hazards can be significantly decreased by the procurement and installation of new observation, communictions, display, and data processing systems. Such procurement will be costly but, in our view, the benefits will far outweigh the costs. We recommend that adequate funding be provided for the new technology.

EFFECTIVENESS OF THE NATIONAL WEATHER SERVICE

3. We are of the opinion that the effectiveness of the National Weather Service in achieving its end objective of protecting the public and serving the economy is enhanced when there is a close relation between community and service. It is important, therefore, that "service" criteria be established to determine which and how many communities shall have local weather service provided by the Federal Government.

We find that the proposals for changes in the number and distribution of weather stations of the past several years do not conform to well-understood criteria. We do not believe that the almost "hit or miss" approach to weather station closures of the past several years has served the Nation well.

We recommend that criteria be developed for weather station closure and establishment. We also recommend that possible cooperative funding arrangements between the Federal Government, States, and local communities be explored.

THE NEED FOR A STRONG CENTRAL GOVERNMENT WEATHER SERVICE

4. We recommend that current policies for operation of Federal meteorological services should continue to be based on the maintenance of a strong central weather service to provide weather warnings and common weather services for all Federal agencies. Steps should be taken to ensure that these policies can be effectively implemented to prevent the establishment of multiple weather services.

PUBLIC-PRIVATE WEATHER SERVICES RESPONSIBILITIES

5. The primary responsibility for predicting life-threatening weather events should rest with the Federal Government's National Weather Service. The National Weather Service should issue general forecasts for the public.

We recommend that current weather data and forecasts acquired and prepared by the Federal Government should be provided without charge to organizations and institutions that further the objective of the widest possible dissemination of weather warnings.

We advocate a continuing role for the Federal Government in providing the specialized analyses and forecasts that serve broad economic sectors where there is a high national interest, as defined by Congress, as well as those that are required by other Federal agencies in the conduct of their missions. We see the private sector as providing analyses and forecasts that particularize information to meet the needs of specific clients or constituencies.

THE DISSEMINATION OF WEATHER WARNINGS

In light of the increasing role of the private sector in the dissemination of weather information, we recommend that the Federal Communications Commission take steps to ensure that all weather emergency messages and warnings of the National Weather Service are properly disseminated, identified, and carried in broadcasts.

USER FEES

6. We find the concept of user fees for federally supplied weather information attractive but conclude that the implementation of user fees may be practical only in special cases. Many organizations that now receive weather information and data from the government free of cost to themselves, contribute valuable and otherwise unobtainable weather data, and frequently provide essential dissemination services at no cost to the Federal Government. Services designed to protect life and property should not be withheld from those unable or even just unwilling to pay. Some sectors, such as shipping, agriculture, and aviation, bulk so large in the economy and the national interest is so strong that the Federal Government continues to have an important responsibility for providing weather services aimed at increasing their productivity and efficiency. Where the private sector is increasing its provision of weather services, such as is increasingly the case with dissemination, quid pro quo considerations generally militate against the institution of fees.

We recommend that any establishment of user fees for private sector users of Federal Government weather data and services should take into account the quid pro quo contributions of the private sector to the observation, communication, and dissemination functions of the total national weather system. These quid pro quo contributions by the private sector provide vital elements of our weather service and are generally provided free of charge to the Federal Government to ensure effective weather service.

The aviation industry pays special excise taxes into a trust fund set up under the authority of the Airport and Airway Development Act of 1970 to support airport construction and other aspects of the infrastructure of the Nation's airways. We support the use of this fund to provide federally supplied aviation weather services. We see aviation weather services as an integral part of the Nation's airways systems. If other private sector activities, such as shipping, waste disposal at sea, and the like are brought into similar tax arrangements, we recommend that weather services applicable to those activities be funded out of such receipts.

DATA ACQUISITION—A FEDERAL RESPONSIBILITY

7. We recommend that the Federal Government retain full responsibility for assuring that the Nation has a data acquisition system capable of acquiring the full set of observation necessary to describe the conditions of the atmosphere and to forecast weather phenomena on all scientifically meaningful time and space scales. We see agencies of the Federal Government as the operators of the bulk of this

system with some operations in special circumstances in the private sector. This policy is essential to:

(a) Provide for an integrated data acquisition system whose management can organize, coordinate, and ensure timely transmission of data from many different platforms, collected by many different entities.

(b) Provide the international data exchange arranged by governments among all countries of the world to ensure adequate basic weather data necessary for preparation of weather forecasts.

(c) Ensure data quality control and a system design for optimal coverage and information integration to serve both civil and national security needs.

BASIC DATA ANALYSIS AND FORECASTING—A FEDERAL RESPONSIBILITY

8. We recommend that the management and operation of the Nation's basic data analysis and forecasting functions continue as a Federal responsibility. This function produces the weather information base common to all weather service products for both public and private use. The discharge of this function requires that computer and communication resources be integrated with the data acquisition system. Only the Federal Government is in a position to discharge this responsibility as long as the data acquisition functions remain a Federal responsibility.

THE PRIVATE SECTOR OPERATION OF THE NATIONAL WEATHER SERVICE

9. If Federal funding through traditional Congressional appropriations cannot provide for the necessary acquisition of technology for weather observations, and for the basic analysis and forecasting functions, we recommend a study of the establishment of a quasi-government corporation in the private sector to undertake weather data acquisition, and basic analysis and forecasting functions. Under contract, such a corporation would provide those services required by the Federal Government and would have authority to supplement Federal funds from other sources. At this time, we do not find the establishment of a quasi-government corporation to be a desirable course of action, because we do not foresee an increase in efficiency.

THE INTERDEPENDENCE OF THE NATION'S WEATHER SERVICES

10. We believe that, in any planning for change in financing and management of weather services, recognition must be given to the fact that the Nation's weather services involve the pooled activities of a number of Federal agencies as well as institutions in the private sector and that all elements need to be considered.

ISSUES REPORTED BY NACOA (1980, 1981, AND 1982)

1. Instrumented Aircraft for Atmospheric Research; recommendations to President's Science Advisor on need for improved agency coordination of available assets (Federal and non-Federal) in view of declining budgets (September 1980).
2. National Climate Program; recommendations on final draft of Program sent to Director, White House Office of Science and Technology Policy (OSTP) (November 14, 1980).
3. National Oceanic Satellite System (NOSS); a formal position statement on the need for remote sensing from space. Sent to OMB, OSTP, Defense, Commerce, NASA, and Congress (December 2, 1980).
4. Ocean Services for the Nation; report to President of services needed for increased ocean use and improved management of resources. First report of National Ocean Goals and Objectives project looking to the year 2000 (January 1981).
5. Coastal Energy Impact Program; appraisal of Department of Commerce report to OMB requested by Chairman, Subcommittee on Oceanography, HMMFC (January 14, 1981).
6. The Role of the Ocean in a Waste Management Strategy; a report to the President and Congress presenting NACOA recommendations on ocean waste disposal policies (January 21, 1981).
7. Impact of changes to ocean programs resulting from President Reagan's fiscal year 1982 budget proposals; letter to President (May 15, 1981).
8. Atmospheric Research Facilities; report to the President's Science Advisor with recommendations on needed research facilities (June 30, 1981).
9. Oil Spill Liability and Compensation legislation; presented recommendations in testimony at request of House and Senate, (House—March 11, 1981; Senate—March 25, 1981). Additional views on adjudicatory panels sent to Congress by letter (July 1981).

10. Satellite Global Positioning; recommendation sent to Secretary of Transportation regarding need for increased civilian interest inputs and for consideration of user fee options in design decisions (August 19, 1981).

11. Outer Continental Shelf Revenue Sharing; extensive position paper presented at hearings before Subcommittee on Oceanography, HMMFC. (November 19, 1981) and Senate Commerce Committee (August 12, 1982).

12. Federal Regulation of Diving; recommendation on regulatory relief for scientific diving sent to Vice President Bush, Chairman Presidential Task Force on Regulatory Relief (January 18, 1982).

13. Coastal Barriers; extensive review and public hearings resulted in a NACOA position statement on coastal barriers and Federal flood insurance. Presented to Senate Subcommittee on Environmental Pollution during hearings on February 3, 1982.

14. Ocean Dumping; testimony before Subcommittee on Oceanography, HMMFC, regarding inadequacy of President's fiscal year 1983 budget proposals for ocean research and monitoring to support changing ocean dumping policies (March 23, 1982). Letters to OMB, EPA, and NOAA (May 20, 1982).

15. Dredge and Fill Permits (Section 404 Clean Water Act); position and recommendations on administrative procedures and policies to Vice President Bush, Chairman, Presidential Task Force on Regulatory Relief (April 16, 1982).

16. OCS Leasing System and Environmental Impact Statements; several public hearings to examine effectiveness and opportunity for expression and reception of fisheries concerns in the leasing process. Major participants: Commerce and Interior Departments. Will reexamine after some experience with new Interior rules and schedule (May, August 1982).

17. Future of the Nation's Weather Services; report to the President and Congress with recommendations to ensure effective capability by Federal government to provide forecasts and severe weather warnings to the public (July 1982).

18. Fisheries for the Future; report to the President with recommendations for industry and Federal government actions to enhance national benefits from potential of marine and coastal fisheries. A National Ocean Goals and Objectives report (July 1982).

19. Weather Circuits for Aviation; recommendations to FAA and NOAA on need for joint review of responsibilities and management of system (July 19, 1982).

20. Ocean Observing Satellites for Research; recommendations to OMB, OSTP, Federal Departments and Congress on need for global-synoptic observations to advance science for benefit to public (November 4, 1982).

21. The Nation's River and Flood Forecasting and Warning Service; a report to the President and Congress on the capabilities and adequacy of this NOAA service to the public (in preparation).

22. U.S. Coast Guard Roles and Resources; a report to the President and Congress reviewing the mission-resource availability balance with recommendations addressing the problem, including possibility of "user" contributions for some.

23. Marine Transportation; a report to the President with recommendations for revitalizing this industry important to national security. A National Ocean Goals and Objective report.

24. Sea Grant; an extended position paper sent to Chairman, Committee on Commerce, Science and Transportation for the record of hearings on NOAA's ocean and coastal programs at which NACOA chairman testified. Position paper reaffirms strong NACOA support for Sea Grant.

OTHER REVIEWS IN PROCESS

Wetlands Conservation legislation.
Policy on Ocean Disposal of Radioactive Waste.
Review of EEZ and related legislative proposals.
Marine Minerals (National Ocean Goals and Objectives project).
Impact of Underwater Technology on Ocean Science progress.

OTHER ITEMS REVIEWED IN 1980

Coastal Zone Management Act Amendments.
Federal Plan for Ocean Pollution Research, Development, and Monitoring.
Fishery Development Policy.
NOAA Organic Act.
U.S. Coast Guard Research and Development.
Weather Modification.
NSF support for Oceanic and Atmospheric Sciences.

Senator GORTON. Thank you, Dr. Knauss.

We will now proceed to our first panel, Dr. Fleagle, Dr. Hosler, and Mr. Leavitt.

Dr. Fleagle, you are welcome and you may proceed.

STATEMENTS OF DR. ROBERT G. FLEAGLE, PROFESSOR OF ATMOSPHERIC SCIENCES; DR. CHARLES HOSLER, DEAN, COLLEGE OF EARTH AND MINERAL SCIENCES, PENNSYLVANIA STATE UNIVERSITY; AND PETER LEAVITT, EXECUTIVE VICE PRESIDENT, WEATHER SERVICES CORP.

Dr. FLEAGLE. Senator Gorton and members of the committee, I am Robert G. Fleagle, professor of atmospheric sciences at the University of Washington in Seattle. I note I am identified as "Professor of Atmospheric Services." That is incorrect in the schedule you have before you.

During my professional career I have had many opportunities to observe parts of NOAA, especially its research arms and their contributions to operations. I served in the midsixties in the Executive Office of the President with oversight responsibilities for Federal agencies doing atmospheric and oceanic research. In the late seventies I spent a sabbatical year as consultant to NOAA, and in that capacity I devoted special attention to formulation of the national climate program and other NOAA research programs.

Earlier, as chairman of the National Academy of Sciences Committee on Atmospheric Sciences, I had directed an analysis of atmospheric research aimed at setting priorities for the seventies. Recently, I have been president of the American Meteorological Society, whose concerns embrace the research and operational aspects of the field.

I am glad to be here this morning to discuss with you the NOAA atmospheric research program and its relation to services. I shall limit my attention to a few selected elements which deserve special attention.

I begin with the perspective that over the years NOAA has served the national interest in outstanding fashion with limited resources. In critical years, it was blessed with outstanding leadership. NOAA, along with the Geological Survey, can be properly regarded as the flagship of the national effort to understand the natural environment. To a great extent, it carries the brains, the memory, the communications, the technical skills upon which our use of environmental resources and their protection depends.

But the flagship has taken some shots through the rigging and the pilothouse, and NOAA's capabilities as flagship are in jeopardy. There is no other agency even remotely equipped to step into the breach—to provide the knowledge, the research, the technical judgments on environmental matters which the Nation clearly will need in the remainder of the twentieth century.

There is much that we do not know about the future, but on some propositions there is little uncertainty. The future will require all possible efforts to increase global food production, to understand acid rain, and to limit air and water pollution, to anticipate the effects of the increasing carbon dioxide content of the atmosphere on climate, to anticipate the effects of man-produced gases on the stratospheric ozone shield, and to reduce loss of life from hurricanes, tornadoes, and floods.

How does the NOAA budget for fiscal year 1984 as presented by the President to the Congress fit the requirements that I have outlined? The President's budget includes $149 million for NOAA research and development, down from actual expenditures of $152 million in fiscal year 1983 and $204 million in fiscal year 1980. These numbers and those which I will use later may be somewhat uncertain in detail due to variations in accounting. However, I believe that they are sufficiently accurate for the discussion which follows.

The NOAA research budget includes, of course, ocean sciences and fishery research, as well as atmospheric research. In the $149 million proposed by the President there is limited support for two expanded atmospheric research efforts: improving prediction of severe weather and studies of the effects of air-sea interaction on climate.

The program to improve prediction of severe weather is based on past developments in remote sensing of the atmosphere which provide enormously greater detail in observing phenomena such as thunderstorms and tornadoes. Present capabilities result directly from the prototype regional observing and forecast system, known as PROFS, which NOAA initiated and has carried forward during the past 6 to 8 years.

Improved prediction of severe weather also requires the use of numerical models of storm behavior. These models have been developed over the past decade within research laboratories and at universities.

The plan which NOAA proposed calls for 20 positions and $8.9 million for the first year of this important program. The President's budget includes only 8 positions and $2 million, a very limited start.

The second program identified in the President's budget, study of the effects of air-sea interaction on climate, which answers to the acronym OACIS, will build on programs of the past few years involving observations over the ocean and numerical models of the global circulation. We have learned that the ocean and atmosphere are coupled on seasonal and longer time scales, and this insight provides a powerful incentive to try to determine whether it will be possible to predict climate changes.

The NOAA plan calls for six positions and $5.5 million for the first year. The President's budget reduces this to five positions and $2.5 million.

Each of these programs, severe weather and climate, is an interagency program for which a coordinated national effort will be required. What we are addressing here is the NOAA component, but NOAA as the flagship agency is looked to by other agencies and universities for coordination and leadership.

In all candor, confidence in NOAA's ability to serve this function is not strong at this time.

The President's budget also carries the news by omission—Senator Gorton, you have already anticipated me on this—that a number of important scientific programs developed by NOAA are not to be carried forward while some existing continuing programs are to be scaled down. Efforts to improve prediction of hurricanes and even their surveillance are to be severely cutback.

NOAA has operated two four-engine research aircraft instrumented for research in hurricanes and other storms. These sophisticated aircraft are important national assets which should be used effectively to learn more about hurricane dynamics, but it appears likely that they will be used very little for this purpose in the next several years.

It is hard not to conclude that the downgrading of hurricane research may reflect the simple fact that by chance, the Nation has escaped for the past several years heavy destruction of property and loss of life from hurricanes, and that we may have to wait until the next severe hurricane to restore research funds to an effective level.

An improved program of measurement of trace gases in the atmosphere proposed by NOAA has been dropped by the President. Under this program, gases which may affect the stratospheric ozone shield, which may be responsible for acid rain or which may affect the climate through absorption of radiation, will be observed and their effects studied. NOAA laboratories have unique capabilities for carrying out critical observations and research on gases where, though they occur in small concentrations, may be of the utmost importance.

These laboratories have been responsible for demonstrating definitively that atmospheric carbon dioxide has increased by more than 5 percent in 25 years, and for conducting research to determine what the effects will be of continued increase of carbon dioxide into the next century. NOAA laboratories monitor the manmade gases such as freon which may have the effect of weakening the stratospheric ozone shield, and they directly monitor the distribution of ozone.

These laboratories constitute vital national assets developed over many years, which have operated with minimal resources. They will continue to do important work but without additional resources, it will not be possible to press ahead as rapidly as we should.

NOAA resources and expertise make essential contributions to air pollution research, even though this field is perhaps a more direct responsibility of EPA and the Department of Energy. These contributions include field observations, instrument development and the development, and testing of numerical models of the transport and diffusion of air pollution.

NOAA scientists have recognized the need for a substantial extension and strengthening of our understanding of air pollution based on the anticipation that national and global use of energy resources will continue to increase in the coming decades. They have proposed an interagency program utilizing NOAA's observing and remote sensing capabilities and its strength in numerical modeling and meteorological prediction. The plan is realistic and timely, and I believe that NOAA's contribution is essential. It is the contribution of the flagship.

These are, as I have said, programs proposed by NOAA but not included in the President's budget. Equally as important as these discrete items are the reprogramings and internal retreats made necessary by relentless budget pressures. For example, the planned increase of $2 million in research on prediction of severe weather is partially offset by reductions in related research in the Weather Service and the environmental research laboratories. When whole laboratories are closed, it has been necessary to continue certain elements doing vital work. This, obviously, can be done only by reprograming from other programs which suffer in their turn.

Along with scaling down of hurricane research, to which I referred earlier, it appears that control of the research aircraft may be shifted from the environmental research laboratories to NOAA headquarters. I have used NOAA aircraft in research projects. These experiences have given me the highest regard for the capabilities and professional performance of the NOAA flight facility, and I believe it would be a grave mistake to separate the aircraft from the researchers who will use them.

Especially disquieting is the possibility—or is it more than that—that the 7-year upgrading of NOAA research computers authorized by Congress 2 years ago may be replaced by a centralized Department of Commerce computer system. This would remove control of this resource essential to research from NOAA scientists. It seems to me that this would have very great costs in reduced effectiveness.

In the same year that the President has proposed an 18 percent increase in the National Science Foundation budget and a 30 percent increase in DOD research and development, he has proposed reduction of 22 percent in NOAA research and development. This discrepancy is glaring. It must reflect a serious misreading of NOAA's role.

The Nation is, to a considerable extent, dependent on NOAA research for gaining the understanding of our natural environment which we must have to prosper in the 21st century. If NOAA research is weakened, we will all live with the consequences for years to come.

I urge this committee to recommend an increase in NOAA research comparable to that proposed by the President for other research and development agencies. Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF DR. ROBERT G. FLEAGLE, PROFESSOR OF ATMOSPHERIC SCIENCES

Senator Gorton and Members of the Committee, I am Robert G. Feagle, professor of Atmospheric Sciences at the Univeristy of Washington in Seattle. I have had many opportunities during my professional career to observe parts of NOAA, especially its research arms and their contributions to operations. I served in the mid 60's in the Executive Office of the President, with oversight responsibilities for federal agencies doing atmospheric and oceanic research. In the late 70's I spent a sabbatical year as consultant to NOAA, and in that capacity I devoted special attention to formulation of the National Climate Program and other NOAA research programs. Earlier, as Chairman of the National Academy of Sciences Committee on Atmospheric Sciences, I had directed an analysis of atmospheric research aimed at setting priorities for the 70's. Recently, I have been President of the American Meteorological Society whose concerns embrace the research and operational aspects of the field within government, the universities, and the private sector. I am glad to be here this morning to discuss with you the NOAA atmospheric research program and its relation to services. I shall limit my attention a few selected elements which deserve special attention.

I begin with the perspective that over the years NOAA has served the national interest in outstanding fashion with limited resources. In critical years it was blessed with outstanding leadership. A strong effective institution was created by placing excellent people in key positions and by supporting far-sighted policies. NOAA can be properly regarded as the flagship of the national effort to understand the natural environment. To a great extent, it carries the brains, the memory, the communications, the technical skills on which our use of environmental resources and their protection depends. But the flagship has taken some shots through the rigging and the pilot house, and NOAA's capabilities as flagship are in jeopardy. There is no other agency even remotely equipped to step into the breach—to provide the knowledge, the research, the technical judgements on environmental matters which the nation clearly will need in the remainder of the 20th century.

There is much we don't know about the future, but on some propositions their is little uncertainty. The future will require all possible efforts to increase global food production, to understand acid rain and to limit air and water pollution, to anticipate the effects of the increasing carbon dioxide content of the atmosphere on climate, to anticipate the effects of man-produced gases on the stratospheric ozone shield, and to reduce loss of life from hurricanes, tornadoes, and floods. These are examples of major problems we already have identified which require improved understanding of the atmosphere. We must expect that others will be added to the list in the future.

How does the NOAA budget for fiscal year 84, as presented by the President to the Congess fit the requirements I have identified? The President's budget includes $149 M for NOAA research and development, down from actual expenditures of $192 M in fiscal year 1983 and $204 M in fiscal year 1980. These numbers and those which I will use later may be somewhat uncertain in detail due to variations in accounting; I believe that they are sufficiently accurate for the discussion which follows. The NOAA research budget includes, of course, ocean sciences and fishery research as well as atmospheric research. In the $149 M proposed by the President, there is limited support for two expanded atmospheric research efforts: improving prediction of severe weather, and studies of the effects of air-sea interaction on climate. The program to improve prediction of severe weather is based on past developments in remote sensing of the atmosphere which provide enormously greater detail in observing phenomena such as thunderstorms and tornadoes. Present capabilities result directly from the Prototype Regional Observing and Forecast System (PROFS), which NOAA initiated and has carried forward during the past 6 to 8 years. Improved prediction of severe weather also requires the use of numerical models of storm behavior; these models have been developed over the past decade within research laboratories and at universities. The plan which NOAA proposed calls for 20 positions and $8.9 M for the first year of this important program; the President's budget includes only 8 positions and $2 M, a very limited start.

The second program identified in the President's budget, study of the effects of air-sea interaction on climate, which answers to the acronym OACIS, will build on programs of the past few years involving observations over the ocean and numerical models of the global circulation. We have learned that the ocean and atmosphere are coupled on seasonal and longer time scales, and this insight provides a powerful incentive to try to determine whether it will be possible to predict climate changes. The NOAA plan calls for 6 positions and $5.5 M for the first year; the President's budget reduces this to 5 positions and $2.5 M.

Each of these programs—severe weather and climate—is an interagency program for which a coordinated national effort will be required. What we are addressing here is the NOAA component. But NOAA, as the flagship agency, is looked to by other agencies and the universities for coordination and leadership. In all candor, confidence in NOAA's ability to serve this function is not strong at this time.

The President's budget also carries the news—by omission—that a number of important scientific programs developed by NOAA are not to be carried forward while some existing continuing programs are to be scaled down. Efforts to improve predictions of hurricanes, and even their surveillance, are to be severely cut back. NOAA has operated two 4-engine research aircraft, instrumented for research in hurricanes and other storms. These sophisticated aircraft are important national assets which should be used effectively to learn more about hurricane dynamics, but it appears likely that they will be used very little for this purpose in the next several years. It is hard not to conclude that the downgrading of hurricane research may reflect the simple fact that by chance the nation has escaped for the past several years heavy destruction of property and loss of life from hurricanes and that we may have to wait until the next severe hurricane strikes to restore research funds to an effective level.

An improved program of measurement of trace gases in the atmosphere has been dropped by the President. Under this program gases which may affect the stratospheric ozone shield, or which may be responsible for acid rain, or which may affect the climate through absorption of radiation would be observed and their effects studied. NOAA laboratories have unique capabilities for carrying out critical observations and research on gases which, though they occur in small concentrations, may be of the utmost importance. These laboratories have been responsible for demonstrating definitively that atmospheric CO_2 concentration has increased by more than 5% in 25 years and for conducting research to determine what the effects will be of continued increase of CO_2 into the next century. NOAA laboratories monitor the man-made gases, such as freon, which may have the effect of weakening the stratospheric ozone shield; and they directly monitor the distribution of ozone. These laboratories constitute a vital national resource, developed over many years, which have operated on minimal resources. They will continue to do critically important work; but without additional resources, it will be possible to press ahead as rapidly as we should in this critical field.

NOAA resources and expertise make essential contributions to air pollution research, even though this field is perhaps a more direct responsibility of EPA and the Department of Energy. These contributions include field observations, instrument development, and the development and testing of numerical models of the transport and diffusion of air pollution. NOAA scientists have recognized the need for substantial extension and strengthening of our understanding of air pollution, based on the anticipation that national and global use of energy resources will continue to increase in coming decades. They have proposed an interagency program utilizing NOAA's observing and remote sensing capabilities, and its strength in numerical modelling and meteorological prediction. The plan is realistic and timely, and I believe that NOAA's contributions is essential. It is the contribution of the flagship.

These are, I have said, programs proposed by NOAA but not included in the President's budget. Equally as important as the discrete items identified in the budget are the reprogrammings and internal retreats made necessary by relentless budget pressures. For example, the planned increase of $2 M in research on prediciton of severe weather is partially off-set by reductions in related research in the Weather Service and the Environmental Research Laboratories. When whole laboratories have been closed, it has been necessary to continue certain elements doing vital work; this obviously can be done only by reprogramming from other programs, which suffer in their turn.

Along with scaling down of hurricane research, to which I referred earlier, it appears that control of the research aircraft may be shifted from the Environmental Research Laboratories to NOAA headquarters. I have used NOAA aircraft in research projects. These experiences have given me the highest regard for the capabilities and professional performance of the NOAA Flight Facility, and I believe it would be a grave mistake to separate the aircraft from the researchers who will use them.

Especially disquieting is the possibility, or is it more than that, that the 7-year upgrading of NOAA research computers, authorized by Congress two years ago, may be replaced by a centralized Department of Commerce computer system. This would remove control of this resource essential to research from NOAA scientists. It seems to me that this would have very great costs in reduced effectiveness.

In the same year that the President has proposed an 18% increase in the NSF budget and a 30% increase in DOD R and D, he has proposed reductions on 22% in NOAA R and D. This discrepancy is glaring; it must reflect a serious misreading of NOAA's role. The nation is to a considerable extend dependent on NOAA research for gaining the understanding of our natural environment which we must have to prosper in the 21st century. If NOAA research is weakened, we will all live with the consequences for years to come. I urge this Committee to recommend an increase in NOAA research comparable to that proposed for other R and D agencies.

[The following information was subsequently received for the record:]

QUESTIONS OF THE COMMITTEE AND THE ANSWERS THERETO

Question 1. You state that NOAA can be regarded as the "flagship" among agencies in the national effort of understanding the natural environment, but that the Administration's proposed budget puts NOAA's standing in jeopardy. Could you elaborate on this?

What is the national and international standing of NOAA's atmospheric research and how will the proposed budget cuts affect this strategy?

Answer. As I have stated in my prepared testimony, the President's budget proposes reduction of 22 percent (from $192 M to $149 M) in NOAA research. Included are major cuts in atmospheric, oceanic, and fishery research. I will limit my comments to the atmospheric component which represents roughly one-third of the total ($66 M in FY81.[1] This supports research laboratories engaged in a great variety of activities, e.g. observational studies of hurricane structure, development of techniques to detect tornadoes and to observe violent storms in detail, satellite observations of changes in solar and terrestrial radiation, studies of the sources and effects of acid precipitation, effects of increasing carbon dioxide concentration on climate, effects of man-made products, such as freon gas, on the earth's protective ozone shield, development of improved numerical weather prediction methods, and many others. These programs are vital to understanding of complex environmental problems and the nation's capabilities to deal with them in future decades. They also contribute to the operational activities of NOAA which in FY82 entailed expenditures of about $375 M.[2]

Based on its active research programs, NOAA has played the key role in interagency and international programs. NOAA has been the lead U.S. agency for the World Weather Program, the largest international science program ever carried out, and for many smaller interagency programs. NOAA provides the home for the office of the Federal Coordinator, which coordinates the operational weather services of NOAA, the Air Force, Navy, Army, FAA and other agencies. It provides for liaison with the World Meteorological Organization and is responsible for worldwide exchange of vital data. NOAA provides a home for the interagency National Climate Program and links the U.S. program to the World Climate Program.

NOAA's "flagship" role is in jeopardy for budgetary and for administrative reasons. The proposed cut of 2 percent in research funds following two years of substantial reductions would result in effectively terminating NOAA's involvement in some programs and for greatly weakening others. I mentioned in my prepared testimony the cut-back in observational hurricane research and in research on trace gases in the atmosphere. Closing of laboratories, such as the Great Lakes Lab, the Space Science Environmental Lab., and the Weather Modification Office will remove NOAA from significant roles in major interagency research program in acid precipitation is likely to delay the detailed understanding which appears needed before effective regulations can be designed.

Administrative problems are numerous and appear to be increasing. They arise from actions taken at high levels with minimal consultation, and from failure to appoint highly qualified and available individuals to key positions, as well as from the pressures of declining resources. There is widespread lack of confidence in the direction of the agency, illustrated by the fact that the report [3] of a two-year study carried out by a Presidentially appointed commission has been ignored and publicly discredited by NOAA officials.

The scientific reputation of the best NOAA laboratories has been very strong. The "flagship" role I have described could only have existed through the leadership of NOAA scientists, as well as through the facilities and the coordination provided by NOAA. NOAA scientists have served vital roles on interagency task groups, National Academy of Sciences committees, and international research planning committees. NOAA has provided experienced program managers for national and international research programs. All this is in jeopardy due to (a) reduced NOAA research capabilities, (b) departure of key NOAA scientists, and (c) reduced morale and sense of direction on the part of remaining employees.

NOAA's strength in research has been substantially augmented by affiliation with universities and research centers. About 10 percent of the atmospheric research budget in 1981 supported university research. NOAA has been able to multiply its in-house scientific strength in this way, and also has improved its ability to recruit qualified students for positions in research and operations. Reductions in budgets will weaken NOAA's link to the universities, and the consequences will be felt within NOAA for many years.

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[1] National Atmospheric Sciences Program, fiscal year 1978–1981. Committee on Atmosphere and Oceans. Fed. Coord. Council for Science, Eng., and Tech., Exec. Off. of President, Washington, D.C., July 1982.

[2] The Fed. Plan for Meteor. Services and Supporting Research, fiscal year 1983. Fed. Coord. for Meteor. Services and Supporting Research, U.S. Dept. Commerce, Washington, D.C., March 1982.

[3] The Future of the Nation's Weather Services. Nat. Advis. Com. on Oceans and Atmosphere, Spec. Report to the President and the Congress, Washington, D.C., July 1982.

Question 2. You mention that the Administration's proposed budgets for NSF and DOD research and development have been increased 18 percent and 30 percent respectively, while NOAA's research and development has been reduced 22 percent. Does NSF and DOD have atmospheric research programs?

Do these programs rely on NOAA data to any large extent?

What will be the impact of the NOAA budget cuts on the effectiveness of NSF and DOD atmospheric research programs?

Answer. The NSF atmospheric research budget was approximately $70 M in fiscal year 1981, about equal to the NOAA atmospheric research budget. This supported equally research at national research centers and at the nation's universities. The total DOD atmospheric R and D budget was about $90 M in fiscal year 1981; $50 M was spent in-house, $20 M for industrial contracts, and $20 M for university and research center support.

Major research programs, such as the World Weather Program, require the pooled manpower and facility resources of NOAA, the universities, and other agencies and research centers. A lead agency is essential in such programs, and NOAA has served this function in many cases.

NOAA provides access to complete data sets assembled from satellites, land stations, ships, buoys, aircraft, and radars. NSF supported universities and research centers could not carry out research programs without these data sets. DOD uses NOAA-processed data for both operations and research. Therefore, reductions in NOAA budgets can be expected to have adverse effects on NSF and DOD research through diminishing NOAA's ability to serve as lead agency for research programs, and degrading the quality and completeness of data sets.

Question 3. Severe weather, ocean climate research, OACIS, and the National Climate program are some of the few areas of NOAA in which the Administration has requested increases. Do you believe that these increases are adequate for these programs to carry out their mandated responsibilities?

Answer. The programs specified for increases are important scientifically and potentially valuable in strengthening operational services. Each of them requires a long-term commitment of resources by NOAA, other agencies, and the universities and research centers. The President's budget proposes funding at levels adequate for keeping the programs moving but substantially below optimum. This will result in stretch-out and slower progress than could be achieved by the programs as originally proposed by NOAA. I am concerned especially that a) cut-backs of storm research within the National Weather Service and the Environmental Research Laboratories will off-set much of the increase specified for improving prediction of severe weather, and b) the integrated system of data collection, processing, research, and archiving, on which each of the expanded programs depends, may be weakened, for the reasons outlined earlier, with adverse effects on all programs.

Question 4. I asked this question of Mr. Winchester, but since you mentioned it in your testimony, I'd also like to ask this of you. The Administration's budget increases carry—by omission—a number of hidden costs. One of these areas is meteorological research. In this case, the $2.2 M increase for severe weather is offset by a decrease of $1.5 M to meteorological research. What are the impacts of these cuts for meteorological research and what are the implications for other areas of NOAA's research and development?

Answer. I believe the reference to an off-setting $1.5 M decrease in meteorological research was made by Mr. Winchester. I had thought the decrease was much less; and I am even more concerned if this is, in fact, the correct figure. I have already answered question 4 in general terms in answering questions 1, 2, and 3, and will address here more specific aspects.

Hurricane surveillance and research will be adversely affected by (a) budget reductions which eliminate Project Stormfury, reduce basic research on cloud physics, reduce flying hours for the research aircraft, and (b) by shifting control of research aircraft to NOAA headquarters.

Monitoring of trace gases (e.g., ozone, freon, methane, nitrous oxide) and research on their effects on climate and on the earth's protective ozone shield cannot be expanded under the President's proposal. Better understanding of trace gases is a matter of high scientific interest which is likely to be important to practical needs of the future.

The Administration has promised Canada that questions concerning acid precipitation originating in the U.S. will be answered promptly. This requires a strengthened interagency effort in which NOAA should play an essential part. Instead, under President's budget, NOAA's present small effort in air quality research may well be further diminished. How will the promise to Canada be implemented?

Development and testing of the new technology essential for observing severe storms in detail (new radars) will be slowed by budget reductions. This will delay up-grading of operational serivces at airports and other stations and will limit what can be done in research.

Reductions in support for research computers and centralization of computer services in Gaithersburg under the National Bureau of Standards will reduce scientist control of computer resources for atmospheric research and will complicate the research process.

These are some of the specific impacts of the budget reductions for NOAA in fiscal year 1984 proposed by the President.

Senator GORTON. Dr. Fleagle, thank you very much. Dr. Hosler, we will proceed to you. I apologize that due to a conflict it will be necessary for me to leave now, and Senator Trible has graciously agreed to chair the balance of the hearing. Dr. Hosler?

Dr. HOSLER. Thank you, Senator Gorton.

Senator TRIBLE [presiding]. Doctor, I may say that if you would care to, we would be pleased for you to summarize your statement and your entire statement will be made a part of the record.

Dr. HOSLER. My name is Charles Hosler, I am a professor and dean at Penn State. I have also served on a great number of the advisory committees, including NACOA and Academy committees that have looked at the programs of the National Weather Service and of NOAA. And I would like to say right up front that we have the best weather services available to our people that are available to any people in the world. It is a result of a great deal of research and a great deal of planning on the part of the executives in NOAA and the scientists in NOAA, and I think our country can be proud of that service.

I would also like to say that I think this service is vital to the quality of life of our people, to their safety and general welfare, and is essential to their productivity. This is a difficult thing to get a handle on, but there are millions, tens of millions of individual decisions made every day by our people, whether it is to plow a field, pick the cherries, pour the concrete, embark on a trip or whatever it may be, each of which, if made on the basis of an accurate weather forecast, is less hazardous, more productive or less wasteful. And this contributes to the overall productivity of our people and our Nation and to the welfare of all of us.

I do not think we can underestimate the importance of this. The most exciting thing is that not only do we have a good weather service now, but we are on the threshold of great improvements in that weather service, particularly in terms of very short-range predictions upon which we act in our daily lives, from hour to hour and from day to day.

Some of the things that have been discussed here this morning, the new generation of radars, improved resolution and frequency of satellite observations, measurements of conditions over the oceans with instrumentation that measures scattering or measures the topography of the ocean's surface which enables us to determine ocean circulation—all of these things bode great things for the future. And I think increased accuracy of weather predictions on all scales and increased productivity of the nation on account of that.

I think that this is not a time to retreat on either research or on services. I think it is a time to be aggressive because of the technological developments that are now available to us.

As far as the private-public mix is concerned, you must realize, as in all things in nature, you are dealing with a continuum. Some of these things that one person would call a special service can be divided up into many degrees of speciality or of specificity. Certainly, agricultural forecasts, general agricultural forecasts are important to farmers in general, and certainly also, on the other end of the spectrum, there are agricultural industries that need private meteorologists to advise them on their specific operations. And I do not think you can talk about divesting yourself of agricultural services without better defining which services you are talking about and how specific they are.

Just as the services to fishing vessels for commercial fishing might be one thing that should be provided by private industry, on the other hand, the people who do general recreational fishing or boating need forecasts, too. So there is a general component there that serves the welfare and the safety of the general public.

There undoubtedly are aspects of the services NOAA provides that can be contracted out to private entrepreneurs, but this has to be thought out and studied very carefully in order to make sure that you are not freezing some segment of the service that should properly be evolving to be improved through research and through perfect integration into the overall service.

Something like the National Weather Service is not something that someone designed and put in place. It is something that evolved over many, many years through the evolution of technology and through the evolution of the science. And you have to be extremely careful, it seems to me, to pick out any segment of that and detach it from the overall organization that is responsible for the Weather Service.

And so, when you get into an element, as you were discussing, the satellites, whether they should be sold or not, I do not think that question can be answered today. I have not seen the studies or the analysis that show whether it would be either scientifically, operationally or economically feasible. It is certainly a subject for proper study, as are many other aspects of these operations of NOAA or the National Weather Service. But I have not yet seen the definitive analysis that would permit me, certainly, to make a decision on something of that nature.

I also would like to comment on the business of fees that has been brought up from time to time. As has been pointed out, our weather services received by our public are a mix of Federal and, in some cases, even State and private entrepreneurs. It is rather essential, it seems to me, that the private sector grow.

A lot of the information that we have available on the weather is not now being used as thoroughly and as well as it might to improve the productivity and the efficiency of our Nation. And to the extent we have more and more private entrepreneurs in this business, it will be more effectively used, in my opinion. To impose upon them fees, whether it be for satellite data or any other type of data would, to me, discourage the utilization of that information. And actually, in the long run, the Government gets the fees anyhow. We do tax people on their income and on their businesses, and it seems to me that it would be the role of Government to encourage greater and greater private use of this information so that they might, if that is their objective, gain additional revenues. But in any event, it would result in a greater utilization of that gold mine of data that we have for the productivity and efficiency of the daily activities of all the people of our country.

You may have seen the figure that about $1.50 per capita in the United States is for weather services, whereas, the media alone, radio and television, spend something on the order of $7.50 just to disseminate that information. And the private sector, again, spends many millions on the private forecasters in massaging and further disseminating that information and further applying it and tailoring it to the needs of specific users.

So I do not think we should just look at the NOAA budget in terms of what it costs us for weather services and what the value of those services is. You really have to look at how many times those data were massaged after the Government released them. And here is where probably the true value of many of those data and those services are derived.

Certainly, I do not think anyone is going to argue about the fact that the general weather forecasts, storm warnings, severe weather warnings are proper, and probably the only body who can do that is the Federal Government. Likewise, the collection of most weather information involves so many political jurisdictions and liability questions that I think only the Federal Government can do it.

It has not been mentioned here this morning, and perhaps should be, the intricate role that our Weather Service plays on the international scene. The World Meteorological Organization I believe is 110 years old. It is probably the oldest organization to which 130 or so nations belong that exists. It is now part, of course of an agency of the United Nations. But all the observational techniques, the standards of quality, the scheduling of transmissions are done on an international basis, and again, you have to—if you are going to privatize any portion of the observational system, you would have to see how well it would integrate in with these international agreements, how well it would conform to international agreements that we have for the exchange of information and for the availability of information.

As I am sure you are aware, there are many national services in this hemisphere and elsewhere that depend very heavily on the observational systems that this country provides. So to summarize, I would just say that I think we have a great future in terms of the improvement in weather sevices in terms of the accuracy available, the ability to plan on what the weather will be for the increased productivity of the country, and for reducing or minimizing hazards to life and limb and to property. I think we have tremendous technological opportunities on the horizon, and this is the time, in my opinion, to be aggressive and to invest in the research and the development and the deployment of these technological advances that will make it pay off for all of us.

Thank you.

[The statement follows:]

STATEMENT OF DR. CHARLES L. HOSLER, DEAN, COLLEGE OF EARTH AND MINERAL SCIENCES, PENNSYLVANIA STATE UNIVERSITY

Thank you for the invitation to make some comments on the NOAA budget for weather services and weather related research.

The weather services available in the United States are the best in the world. They are contributing greatly to the quality of life in America and the productivity of the population. They also continue to contribute greatly to the growth of similar services in many foreign countries through the application of our research and the direct use of the products of our weather observing and prediction systems. I believe it is fair to say that this country has provided most of the underlying operational framework for the meteorological services of the world. A true valuation of the services available today is difficult since many millions of daily decisions go unrecorded and unnoticed. One tends to focus on the impact on aircraft or ship operations, trucking, large construction projects, etc., but probably the greatest value results from the hundreds of millions of individual decisions which determine when the hay is cut, the cherries are picked, the car is washed, the concrete is poured, or a trip is begun. Each one of these decisions based on a correct weather prediction contributes to the productivity, health and safety of our nation. Data show that while property losses increase with the national growth, lives lost in natural weather disasters have declined drastically when the accompanying population growth is taken into account. To a large extent this is due to better application of weather predictions. We get these services for about $1.50 per capita. Would that we received as much in the way of service for our other expenditures. The private media spend about $7.50 per capita in disseminating the information the National Weather Service provides. What I am saying is that I am sure the American public would feel that their $1.50 is well spent in this case.

The exciting thing is that the most spectacular results of weather observation and prediction are yet to be realized. Virtually all weather forecasts are based on two factors: observations and computer-based computations. In both areas, recent advances present great opportunities. As a result of good planning by the management had scientific leadership of NOAA, together with the vision of previous Congresses, major new computing facilities are coming on stream this year. Further, sophisticated and improved measuring systems—doppler rader, vertically-pointing atmospheric wind and temperature profilers, and high resolution satellites are in advanced stages of development or are in experimental deployment. We need only to be sure that we do not falter at the eleventh-hour to expect still better results—perhaps dramatically so-over the next few years.

Forecasts and warnings will almost surely be better because profilers will observe the winds over the United States continuously instead of twice daily, satellites will quantitatively measure smaller sized disturbances than previously, and the more powerful computers will be capable of making use of the resulting data in a timely manner. Much of the error perceived in today's forecasts is due to the coarse scale on which weather has been observed and calculated in both time and space. Widely spaced observation points which take snapshots of the weather either two or four times per day permit many weather systems which affect our daily lives to slip between the observations and permit new small-scale storm systems to develop and dissipate before we pick them up.

Particularly exciting are the improvements in the offing in predicting the weather on the very small scale for periods of hours. At present we do very well on the flows of air aloft—the jet streams—over the course of a few days. Sneak cold waves no longer occur, great storms are predicted days in advance. But for large thunderstorm complexes heavy rain and snow bands in coastal regions or freezing rain bands we lack the precision necessary to make the predictions terribly useful to the individual decision maker. We must see to it that the National Weather Service has access to these new tools. These include: the NEXRAD or next generation of radars which will have the doppler capability to detect small circulations such as occur in severe thunderstorms or tornadoes, long-wave (VHF) radar wind profilers which give twenty-four hour per day wind direction and speed at levels up to 14 kilometers, improved geostationary satellites with sounding capabilities, capability of measuring scattering and the height of the sea surface, faster computers for processing the resultant data into usable information and a satellite dissemination system which brings the information to users. A National Academy study a few years ago resulted in an estimation that a 15 percent increase in the budget each year for five years would be required to provide this updating of our data acquisition and processing capability along with the research and development necessary to merge all of the components into a modern weather system. We have traveled part of that road; we should certainly not stop when the pay-out is in sight.

The most fertile field for exploitation at present is in what meteorologists call the meso-scale. These are systems on the scale of a few kilometers to several hundred kilometers across. These include Great Lakes snow squalls, snow bands on the East Coast, certain types of flash floods in all parts of the country, thunderstorms and tornadoes. Hundreds of individual scientists have been working together to plan a national "storm" project. A theoretical and observational basis exists for a major field project to improve our understanding of the development, evolution and dissipation of these small-scale storms which are responsible for most of the grief and damage currently experienced by our people. Some agency must assume responsibility for a project of this magnitude. NOAA is the logical focus for this study, which will necessitate a large funding increase. The almost certain benefits from this study and the enhanced predictive capabilities which will come from it will greatly eclipse the expense.

Only the Federal Government can make the expenditures necessary and impart the necessary coordination across all national and international political subdivisions to make available the weather information—observations, forecasts and warnings—a modern society must have. Undoubtedly, the corporate end user will increasingly have this information shaped and adapted to serve particular weather-dependent activities. The Federal Government cannot and should not, in my opinion, take on this task. The overwhelming part of current federal expenditures for weather go for bringing the data and information to the stage where general public forecasts and severe weather warnings can be issued by the National Weather Service. This is the very least the government must do for public health and safety.

I can see no point, in this principal part of the process, where fees can be charged or revenues generated with any logic or net positive outcome. A whole spectrum of degrees of specificity of application to private enterprises exist. Most of these can and should be in the private sector, paid for by clients. In turn taxes are paid on earnings derived from selling the information. We should do nothing to discourage the use or sale of this information or its transmission. When it comes to information, we do not have a zero-sum society. The better and more often it can be sold and used the better off the whole society is likely to be and the more revenues the federal and local treasuries will receive. It may eventually be possible to contract with private enterprise for some of the tasks associated with gathering and processing routine weather information. However, strong federal coordination and quality control will be necessary. In the foreseeable future, due to the rapid evoluation of the process, it is hard to see how many diverse organizations could do the R&D, plan an evolving system and provide continued operational products. To freeze the system in its present form would be a disservice to the public. My personal conclusion in this area is that we approach private sector involvement in the basic system carefully and for the present contract out only well defined and easily controlled segments until we are sure that we have a system which will remain stable for some time and the needed products can be easily spelled out in terms of their nature, accuracy, etc.

In the last fifty years tremendous strides have been made in understanding, observing and predicting atmospheric behavior. We are on the edge of a whole new era of advancement which will see great improvement in the temporal and areal precision of forecasts for a day or two, for general forecasts out to a week or so, and in some special circumstances where large oceanic or atmospheric anomalies are observed, we will be able to occasionally predict anomalous weather (drought, cold waves) a season or two ahead. We have the tools of science and technology only dreamt of twenty years ago. We have a crop of brilliant minds equipped to use these tools and chafing at the bit to get on with advancing the science and its application. We have an area of national progress and development which only the Federal Government can significantly affect. I urge you to do all you can to bring to fruition the best weather prediction and dissemination system our society can produce to assure the safety and productivity of our population.

[The following information was subsequently received for the record:]

Questions of the Committee and the Answers Thereto

Question. In your testimony, you characterize the meteorological services in the United States as the best in the world. Do you foresee the quality of these services continuing in light of the Administration's proposed 1984 budget?

Answer. I foresee the immediate results of the budget proposed for 1984 and the coincident proposal to sell the satellites primarily posing a morale problem. The opportunities that personnel see to improve the weather service appear more distant and they are not sure of the role cut out for them in the future. If present budget trends continue, the long range outlook would be for a deterioration of scientific and technological capabilities due to diminishment of research and development and failure to modernize the system.

Question. You mention that advances, and hence, accuracy in weather prediction are directly related to technological advances. Could you elaborate on this? In your opinion, will the Administration's proposed budget allow the weather services to carry out their mandated responsibilities? What about improving the accuracy of weather prediction?

Answer. Technological progress now makes possible the monitoring of atmospheric properities on a continuous basis over very small areas as opposed to most current observations which are taken every six or twelve hours and on a grid of one hundred miles or more. This permits early detection of the development of the small systems such as thunderstorms, heavy snow bands, or tornadoes which often slip between the observing points or form in the time between observations. The current budget does not permit rapid development and deployment of these systems for improvement of the accuracy and timeliness of weather prediction.

Question. You state that the Federal Government has an important role in meteorological services. Can you more clearly define this role? And, in your opinion, can the private sector adequately replicate these services? What role can the private sector reasonably assume in meteorological services?

Answer. The private sector could never organize or afford the global observation and data collection system required for basic weather forecasts. Likewise, public health and safety of large segments of the populaton place these predictions in a category of services that rank with the national defense as proper government functions. Private entrepreneurs can properly provide especialy manipulated data and information necessary for the operation or protection of a specific business or consortium of businesses with special requirements defined by the nature of the business or operations.

Question. The Administration views weather programs such as agricultural weather and fire weather as "specialized" services that benefit a specific user group. Do these programs provide any national benefits? In your opinion, can the private sector adequately pick up these services?

Answer. My conviction is that there is an entire spectrum of activities which might be construed as "special services." These can be listed and examined to determine which are more or less fitting for the Federal Government to engage in depending upon the degree to which general public health and safety are affected. Aviation and marine weather might be at one end of that spectrum and forecasting for cranberry bogs at the other. Even within generic categories such as agriculture or aviation there is a continuum of types of activity or area specificity some of which is more logically a proper federal function and some of which is not. In this continuum I would consider the general agricultural forecast for the dairy farmers in southern Wisconsin as a proper function but forecasts for scheduling planting or harvesting for Green Giant vegetable operations as not proper for the N.W.S. Likewise, forecasts for general flight conditions might be appropriate whereas determination of flight routes which consume least energy would not. Marine forecasts also range from the general forecasts used by recreational fishermen and boaters to commercial applications for transportation or offshore drilling oil production.

I feel that these areas of desired or not desired activity need to be defined clearly in order that private meteorology can make the investments necessary to serve a group of clients without fear of government competition on the one hand and on the other hand so that the N.W.S. can properly budget its energies into those areas where the general public is best served. In addition, when these areas of interest are defined, a spirit of cooperation can be better developed so that the services of the N.W.S. and the private sector will complement and supplement each other for the improvement of health, safety, and productivity of all sectors of society. Development of both federal and private services is inhibited to the extent there is a lack of definition of the extent of the federal mission.

Question. What influences do the atmospheric programs of NOAA exert on the design of NOAA satellites?

Answer. As data are used in operations, gaps in the data, lack of precision, or the need for other information than that provided become apparent. Frequency of observations, or areal coverage may turn out to be unsuitable for the needs which develop. Unless those using the information are intimately involved in the design of the next generation of satellites and are helping to force the new design, the quality and usefulness of the information will be less than possible, and the advancement of techniques to improve forecast accuracy and ability will be slowed or stopped. Up to this point, the feedback from operations people and the researchers into the design of new or more advanced systems has been rather good. Any transfer or responsibilities to the private sector should assure continuation of this feedback.

Senator TRIBLE. Thank you, Doctor, for a very fine statement.

Senator EXON. Mr. Chairman, could I interject a question or two at this time?

Senator TRIBLE. Please.

Senator EXON. Dr. Fleagle and Dr. Hosler and Mr. Leavitt, thank you for coming. I am interjecting myself here. Senator Gorton had to leave to go over to the Budget Committee. I also serve thereon and I may be called in a moment to get a quorum so we can move ahead. I came here this morning not only because I am tremendously interested in the information that you are furnishing to this committee on a tremendously important subject, something that I think is overlooked from time to time, but also because I wanted to get a little better picture of what you experts thought of this budget proposal by the administration. We are going to be taking up in the Budget Committee among other things, this program as well as all others in the budget which will set an early tone as to how much funding we are going to have for that.

Let me say, Dr. Hosler, that I agree completely with your statement. I think it is interesting because a person like yourself who is interested in Penn State University and, therefore, its football fortunes, and someone like me, most interested in the fortunes of the University of Nebraska, do not always agree on everything that comes down the pike.

I was also interested in your statement that we get these services, for about $1.50 per capita. My in-depth study of the situation would indicate that it costs the people of the State of Pennsylvania more than that for their football team, but that may put it in perspective.

Seriously, you said that you did not object to the study of the proposals to sell satellites, and I do not necessarily object to that, either. I assume, though, that you agree with me that studying such a proposal is far different and removed from a specific proposal to do just that, as the administration has done.

Let me ask you this one question. To your knowledge, what experts or group of experts on this subject have been consulted on this proposal advanced by the administration? Certainly, it is a radical departure from the norm, and I am trying to get some information as to who came up with such an idea, other than possibly some bureaucrat in the Office of Management and Budget.

Dr. HOSLER. I do not know of any study. Certainly, I have not been involved in any study nor am I aware of anyone else who has been involved in a study of the feasibility of this action.

Senator EXON. You travel in a circle. I assume, where people do discuss this particular matter.

Dr. HOSLER. Yes, I do, and I served on a committee with an officer of one of the private organizations that would like to buy the satellites, and even on that particular committee, which was on the future of the National Weather Service, that was not discussed.

Senator EXON. I agree with everything that you said, I thought you said it very well with regard to how so many people, especially farmers and ranchers, depend on this weather service. In your professional capacity, and as an expert on weather service predictions and how we proceed into the future have you run into any experts in your circle, of those with whom you associate in the profession, who have thought that the proposal by the administration to sell the satellites is a good idea?

Dr. HOSLER. No, I have not.

Senator EXON. Thank you, Mr. Chairman.

Dr. HOSLER. And I might add, also, that our football program is entirely an auxiliary enterprise. It does not cost the people of Pennsylvania 1 red cent, and we get our revenues from playing opponents like Nebraska and Georgia which bring in vast numbers of fans.

Senator EXON. I thank you very much. The only response I would make to that is that the Washington Redskins are a powerful operation, also. Thank you.

Senator TRIBLE. Mr. Leavitt?

Mr. LEAVITT. Thank you, Senator Trible and Senator Exon. Thank you for the opportunity to be able to present some of my views which I think coincide fairly well with the views of the private sector.

I am executive vice president of Weather Services Corp., a certified consulting meteorologist and fellow of the American Meteorological Society. I have also served on various committees in the society. I have also been a former president of the National Council of Industrial Meteorologists and a charter member thereof; a charter member of the National Weather Association and founder and former president of WSI Corp.—Weather Services International—I still found time to do some work in meteorology. Weather Services Corp. was founded by John E. Wallace 36 years ago in 1946, as Northeast Weather Service, for the purpose of marketing specialized meteorological services to clients who required more detailed or specific information than was available from the U.S. Weather Bureau at that time.

In 1969 the name of the firm was changed to Weather Services Corp., WSI, or Weather Services International, was founded in 1979 for the purpose of providing subscribers with time sharing computer access to real time weather data and processed weather-related information. Although colocated, these two companies operate as separate entities with independent management.

In July 1982, the National Advisory Committee on Oceans and Atmosphere, NACOA, produced a special report that we have heard about earlier today here, "The Future of the Nation's Weather Services." We tended to concur with most of the conclusions expressed in this report. The past three decades have seen a gradual evolution of Federal prerogatives and responsibilities in the management and distribution of weather services, beginning with an almost totally Government operation at first, and then becoming a federally oriented mix of private and public enterprise, particularly in areas of dissemination of the National Weather Service product and in the provision of specialized services.

I do not believe that an ideal balance has yet been reached, but I feel that most of the changes so far have been in the right direction. I would like to delineate some of these points which I think are the least controversial.

First of all, the role of the Government versus the private sector: The basic function of the National Weather Service, as we see it, is to observe weather—that is, to provide and acquire data—to produce forecasts or warnings, particularly to produce warnings of weather elements hazardous to life and property, and then to see that these warnings are disseminated in a timely and comprehensive fashion.

We advocate a single, except possibly for Department of Defense, a single, strong Federal meteorological service with the prime responsibilities of providing the public and other Federal agencies with advance warnings of weather events hazardous to life and property, and with the responsibility for the acquisition, storage, and timely accessibility of all weather and climatic data from both Federal and private sources.

Now, in the process of fulfilling these primary obligations, for example, to provide storm warnings, you have to make forecasts all the time so that you are making a forecast when it is time for a hazardous weather event. So it certainly would be wasteful for the National Weather Service not to distribute fair weather forecasts as well as foul weather forecasts, and we certainly think that is an appropriate function of the Weather Service.

The actual dissemination of these forecasts is now handled in an almost skeleton fashion by the National Weather Service through NOAA radio and what they call "local teletype loops" in individual States; but in fact, most of the load is carried by the private sector, as radio, television, cable, and newspapers, which comprise an expenditure of more than $1.5 billion of non-Government funds.

This communications system works very well. A responsibility that does not function quite as well as yet is the management and distribution of weather and climatic data, although a few improvements have occurred in the last few years. A few comments about data. Any element that is worth observing becomes valueless unless it is observed correctly and completely, recorded carefully, and made accessible to the end user in a timely fashion.

Recently, there has actually been a deterioration in the quality and coverage of weather observations and the associated climatic data.

Some of the causes for this reduction in quality of the data base, I think, are as follows: The closure of manned observational sites, some of them nearly unique, and the reduction in the period and frequency of observations at other sites. The poor training, coordination, and discipline among or within the various other agencies taking observations.

These agencies range in scope from the National Weather Service, the primary agency, to the Department of Defense to privately contracted observers, and finally, to volunteer observers.

Three, a lack of uniformity, or the incompleteness of weather observations themselves.

Some of this is due to the parochial attitudes of the observing agencies. For example, U.S. Air Force observations do not include daily maximum or minimum temperatures. Some FAA observations do not include temperature or humidity measurements at all, because these items do not relate to their particular mission.

Four, the dismantling of the State climatologist program within the National Weather Service or NOAA. This was probably done because of budgetary restrictions, but it cost the National Weather Service one of their principal means of quality control of their data base. And finally the loss or threatened loss of long-term climatic sites. Certain stations with over 120 years of record were closed or substantially cut back. Such records are important for establishing and maintaining an uninterrupted source of data for measuring or assessing climatic change.

The accessibility of weather data: Too much weather data presently being observed is not available to all of the end users in time to be of real value. The value of most meteorological data deteriorates with time. So timely dissemination is often as important as the observation itself.

In addition to observational or raw data, the National Meteorological Center produces a plethora of detailed and sophisticated analyses. Only a portion of these analyses are currently accessible to potential users outside of the National Weather Service.

The causes for this poor accessibility, I believe, are that: One, much raw data is observed by persons or agencies who do not have ready or economical access to an efficient communications system. Two, the interagency transfer of data is not organized as well as it should be. Three, there is no single repository for observational data at this time, and where such data can be accessed in real time. Four, much of the data is not presently handled by or under the control of a single agency, like the National Weather Service, who has the mandated the responsibility for overall data management. And finally, hardware or budgetary limitations restrict the free flow of all processed data from the National Meteorological Center.

The shortcomings outlined above can be rectified by first acknowledging that a comprehensive observation, storage, and accessibility of meteorological data and National Weather Service products is an appropriate primary responsibility of the National Weather Service or NOAA, and second, authorizing the wherewithal to accomplish this.

The subject of user fees. We have never objected in principle to user fees—believe it or not—except that we just cannot see how you can justify these in fact. It has been well described in the NACOA report that most of the cost of dissemination of National Weather Service data and information to the public is borne by the private sector, principally the media, and we feel this represents a more than adequate quid pro quo for the cost to the National Weather Service of generating this information.

Private meteorological data banks could pass the additional costs of data acquisition through to the end user, but does this mean that the data bank companies have to pay for all the data they acquire if they only use a small portion of it, or if only a small portion of it is marketable?

And three, what about the common carriers themselves that provide the communcation links for the data? Should they not also be assessed as users? The NACOA report cites an estimated public access to weather information from the telephone company's recorded weather messages, of one billion calls per year, amounting to a gross income of about $100 million if you assume each call costs no more than 10 cents.

It is our feeling that any reasonable assessment for user fees would require the establishment of a collection system bureaucracy that would be far more costly than the anticipated returns.

The subject of special services: As we noted above, the National Weather Service should provide the warnings and local and regional forecasts directly to the public or the public media via NOAA radio or the so-called local loops. More detailed data or data for more distant areas should be left to the private sector to collate and disseminate.

Services between NOAA and other Government agencies should be controlled by a more coherent and responsive interagency system than is currently in effect, with the cost of such services borne by the receiving Federal agency, who would also be free to contract for duplicate or similar services in the private sector.

Some Government agencies require fairly extensive weather information to fulfill their organic requirements. Weather services to the USDA had been going downhill for many years since 1940, when the Weather Bureau was transferred out of the USDA to DOC. In recent years, we have observed some significant improvements, such as can be found in operations like the joint facility, USDA-NWS, where careful consideration is now given to detailed climatic data for better analysis and forecasting.

Good communication and cooperation between such agencies and the private sector have also been mutually beneficial, we think. Greater improvements in data collection are certainly feasible, such as the systematic collection of precipitation data at the county level and the availability of such information in real time at the State level.

On the subject of aviation weather, currently about 50 percent of the hourly observations used by the National Weather Service are taken by FAA personnel and equipment. This is an interesting use of interagency talent, but unfortunately, many of these observations are heavily oriented toward aviation activities and afford a poor climatological data base for other activities such as agriculture.

A more uniform national code for observations could benefit a larger user group at a minimal additional cost.

The National Weather Service provides terminal or aviation-oriented forecasts for some 500 stations three times per day. Although the dissemination of aviation forecasts can be and often is effectively managed by the private sector, the potential liabilities in generating their—own nonofficial—forecasts to aviation interests effectively precludes many competent private companies from undertaking such an effort.

Unless some protection can be afforded such companies from exposure to ruinous litigation, these companies will continue to avoid this area of potential business, unless this protection is forthcoming.

On the subject of the privatization of the National Weather Service, strangely enough, we tend to oppose such proposals. The National Weather Service operates in a public-private mix at present, and operates very well on a veritable shoestring of a budget. The creation of a quasi-private national weather service would, I believe, lead to the following scenario.

First, a single private agency would become established, and immediately other smaller firms would be disadvantaged by having the fox run the henhouse. Whoever controls the data sources would have pretty good control of the business.

Second, the Federal services other than the military would be dismantled as the private agency takes over. Then would come the inevitable cost increases with the private agency having a strong lever to pry the necessary funds or price increases out of Congress because the country cannot afford to be without a weather service at all.

And then, finally, the single noncompetitive agency would no longer be responsive to public requirements. Other smaller firms would have been put out of business.

The National Weather Service is a mature agency with roots going back more than 110 years. It has never been fat, but in contrast has been a foster child of the administrative bureaucracy, traveling from the War Department to the Agriculture Department in 1870 to 1940, and then on to DOC. Possibly because, if not in spite of this, it is among the most cost-effective Government programs in terms of real return to the gross national product. It is also the finest national weather service in the world.

It is true that the occasional and, due to the state of the art, inevitable busted forecasts seem to get more than their fair share of media attention, but the fact that the Weather Service's products often inspire pointed commentary or amusing anecdotes in the media is not because the service is held in low regard by the public at large, but because the forecasts are so well integrated into the human experience that such comments can elicit a common chord of understanding that is the essence of good-natured humor.

The National Weather Service deserves our wholehearted support, and it certainly has mine.

Thank you very much.

[The statement follows:]

STATEMENT OF PETER LEAVITT, EXECUTIVE VICE PRESIDENT, WEATHER SERVICES CORP.

Weather Services Corporation was founded by John E. Wallace 37 years ago in 1946, as Northeast Weather Service, for the purpose of marketing specialized meteorological services to clients who required more detailed or specific information than was then available from the U.S. Weather Bureau. Peter Leavitt joined the company in 1956 and has been employed there ever since, except for a brief hiatus in 1966–1969 when he took over the operation of a competing firm * * * Weather Services Inc. In 1969 this firm was merged into Northeast Weather Service and the name of the combined companies was changed to Weather Services Corporation (WSC) which continues to the present time.

WSI Corp (Weather Services International) was founded by Mr. Leavitt in 1979 for the purpose of providing subscribers with time-sharing computer access to real-time weather data and processed weather related information. Although co-located, the two companies (WSC and WSI) operate as separate entities with independent management.

In July 1982, the National Advisory Committee on Oceans and Atmosphere (NACOA) produced a special report entitled, "The Future of The Nation's Weather

Services". We tend to concur with most of the conclusions expressed in this report. The past three decades have seen a gradual evolution of federal perogatives and responsibilities in the management and distribution of weather services, beginning with an almost totally government operation at first, to a federally oriented mix of public and private enterprise, particularly in areas of dissemination of the National Weather Service product and in the provision of specialized services.

I do not believe that an ideal balance has as yet been reached, but I feel that most of the changes have been in the right direction. I would like to first delineate those points which seem to be the least controversial.

Role of the Government vs. the Role of the Private Sector:

We advocate a single (except for DOD) strong federal meteorological service with the prime responsibilities of providing the public and other federal agencies with advance warnings of weather events hazardous to life and property, and with the responsibility for the acquisition, storage and timely accessibility of all weather and climatic data from both federal and private sources.

In the fulfillment of these responsibilities, other duties are appropriate, if simply from a cost-effectiveness standpoint. In the process of maintaining a watch for hazardous events, forecasts of benign weather have to be generated on a regular basis to maintain continuity and also communication links for those periods when warnings would be required. It would be profligate not to provide these routine forecasts as well as to the general public.

The actual dissemination of these forecasts is handled now in an almost skeleton fashion by the NWS through NOAA Radio and local teletype loops. Most of the load is carried by the private sector * * * Radio, TV, cable and newspapers * * * comprising an expenditure of more than $1.5 billion of nongovernment funds. This communication system works very well.

A responsibility that as yet does not function as well is the management and distribution of weather and climatic data, although a few improvements have occurred during the past few years.

Data:

Any element that is worth observing becomes valueless unless it is observed correctly and completely, recorded carefully, and made accessible to the end user in a timely fashion. Recently there has actually been a deterioration in the quality and coverage of weather observations and associated climatic data.

Causes for reduction in the quality of the data-base:

1. The closure of manned observational sites, some of them nearly unique. The reduction in the period and frequency of observations at other sites.

2. Poor training, coordination and discipline among or within the various agencies taking observations. These agencies range in scope from NWS to DOD to privately contracted observers to volunteer observers.

3. A lack of uniformity among, or the incompleteness of weather observations. Some of this is due to the parochial attitudes of the observing agencies. (For example, the USAF observations do not include daily maximum or minimum temperatures; some FAA observations do not include temperature or humidity measurements at all because these items do not relate to their particular mission).

4. The dismantling of the State Climatologists' Program within NWS-NOAA. This was probably done because of budgetary restrictions, but it cost the NWS one of their principle means of quality control.

5. The loss, or threatened loss of long-term climatic sites. Certain stations with long (greater than 120 years) periods of record were closed or substantially cut back. Such records are important for establishing and maintaining an uninterrupted source of data for measuring and assessing changes in the short- and long-term climate.

Accessibility:

Too much data presently being observed is not available to all of the end users in time to be of real value. Since the value of most meteorological data deteriorates with time, timely dissemination is often as important as the observation itself. In addition to observational, or raw data, the National Meteorological Center (NMC) produces a plethora of detailed and sophisticated analyses. Only a portion of these analyses are currently accessible to potential users outside of the NWS.

Causes for poor accessibility:

1. Much raw data is observed by persons or agencies who do not have ready or economical access to an efficient communication system.

2. The inter-agency transfer of data is not organized as well as it should be.

3. There is no single repository for observational data at this time, and where such data can be accessed in real-time.

4. Much of the delayed data is not presently handled by, or under the control of a single agency like the NWS with the responsibility for data management.

5. Hardware or budgetary limitations restrict the free flow of all processed data from NMC.

The short-comings outlined above can be rectified by: first, acknowledging that comprehensive observation, storage and accessibility of meteorological data and NWS products is an appropriate primary responsibility of the NWS or NOAA, and second, authorizing the wherewithal to accomplish this.

User Fees:

We don't object in principle, we just can't see how to justify these in fact.

1. It has been well described in the NACOA report that most of the cost of dissemination of NWS data and information to the public is borne by the private sector, principally the media. Does this not represent more than adequate quid-pro-quo for the cost to the NWS of generating this information?

2. Private meteorological data banks could pass the additional costs of data acquisition through to the end user. But, does this mean that the data bank companies have to pay for all the data they acquire if only a small portion is marketable?

3. What about the common carriers that provide the communication links for the data. Should they not also be assessed as users? The NACOA report cites an estimated public access to whether information from the telephone companies' recorded weather messages, of 1 billion calls per year, amounting to a gross income of about $100 million.

It is our feeling that any reasonable assessment for user fees would require the establishment of the collection system bureaucracy that would be far more costly than the anticipated returns.

Special Services:

As we noted above, the NWS should provide warnings and local and regional forecasts directly to the public or the public media (via NOAA Radio or the so-called "Local Loops"). More detailed data, or data for more distant areas should be left to the private sector to collate and disseminate.

Services between NOAA and other government agencies should be controlled by a more coherent and responsive inter-agency system than is currently in effect, with costs of such services borne by the receiving federal agency who would also be free to contract for duplicate or similar services in the private sector.

Some government agencies require fairly extensive weather information to fulfill their organic requirements. Weather services to the USDA had been going downhill for many years since 1940 when the Weather Bureau was transferred out of the USDA to DOC. In recent years we have observed some significant improvements such as can be found in the joint facility USDA/NWS, where careful consideration is now given to detailed climatic data for better crop analysis and forecasting. Good communication and cooperation between such agencies and the private sector has also been mutually beneficial we think. Greater improvements are certainly feasible, such as the systematic collection of precipitation data at the county level, and the availability of such information at the state level.

FAA:

Currently, about 50 percent of the hourly observations used by the NWS are taken by FAA personnel or equipment. This is an interesting use of inter-agency talent, but unfortunately many of these observations are heavily oriented toward aviation activities and afford a poor climatological data base for other activities, such as agriculture. A more uniform national code for observations could benefit a larger user group at minimal additional cost.

The NWS provides terminal (aviation-oriented) forecasts for some 500 stations, three times per day. Although the dissemination of aviation forecasts can be, and often is effectively managed by the private sector, the potential liabilities in generating their own (non-official) forecasts to aviation interests effectively precludes many competent private companies for undertaking such an effort, unless some protection can be afforded such companies from exposure to ruinous litigation, these companies will continue to avoid this area of potential business.

Private Sector Operation of the NWS:

We tend to oppose such proposals. The NWS operates in a public/private mix at present, and operates well on a veritable shoestring of a budget. The Creation of a quasi-private national weather service would I believe lead to the following scenario:

1. A single private agency becomes established, and immediately other smaller firms are disadvantaged by having the fox run the hen-house. (Whoever controls the data sources controls the business).

2. The Federal services (other than the military) are dismantled as the private agency takes over.

3. Costs increase, but the private agency has a strong lever to pry the necessary funds, or price increases out of Congress . . . the country cannot aford to be without a weather service.

4. The single, non-competitive agency is no longer responsive to public requirements. Other smaller firms have been put out of business.

Closing remarks:

The NWS is a mature agency with roots going back more than 110 years. It has never been fat, but in contrast, has been a foster child of the administrative bureaucracy, traveling from the War Department to the Agriculture Department (1870–1940) to DOC. Possibly because of (if not in spite of) this it is among the most cost-effective government programs in terms of real return to the gross national product. It is also the finest National Weather Service in the world. It is true that the occasional, and due to the state of the art, inevitable busted forecasts seem to get more than their fair share of media attention, but the fact that the Weather Service's products often elicit pointed commentary or amusing anecdotes in the media is not because the service is held in low regard by the public at large, but because the forecasts are so well integrated into the human experience that such comments can elicit a common chord of understanding that is the essence of good-natured humor. The NWS deserves our whole-hearted support.

[The following information was subsequently received for the record:]

Questions of the Committee and the Answers Thereto

Question. What degree of coordination would you say is necessary among Federal agencies collecting weather data? How would you provide that coordination?

Answer. The most important point is to establish the principle that NOAA will be the single Federal agency responsible for the acquisition and storage of all meterological, oceanographic and related data; and with the additional responsibility for making that data accessible to other Federal agencies and the public in a timely fashion. This does not mean that they have to be the actual agency to make the observations or to produce the raw data, but they must provide the specifications for the data, oversee the collection of the data and maintain control of the quality of the data base. I do not feel competent to suggest how such an arrangement should be handled administratively, but I am confident that if NOAA were given the mandate to pursue this, they could accomplish this economically and pretty much within their present organizational framework.

Question. You mention that private companies are subject to litigation in providing aviation weather services. Isn't this also true for agricultural weather, fruit frost, or severe storm forecasts? How then can such companies assume these responsibilities?

Answer. That is exactly the point, they can't; at least as far as aviation and severe storm forecasts are concerned, because here is where life as well as property is often at stake. I am unaware of any legal suit for damages that has been successfully undertaken against a private meteorologist to compensate for losses incurred as a result of an erroneous weather forecast. Up until now the courts appear to have concluded that any person who acts on the advice of a weatherman should have been well aware of the risks inherent in putting their faith in such an imperfect science. But there is no guarantee that immunity to such actions will continue, especially in what appears to be an increasingly litigious society. Some insurance companies do offer liability insurance, but such policies are usually very expensive where the potential losses could involve lives. Federal employees are not so personally threatened by legal action. Without similar guarantees I do not believe there are many responsible private meteorological firms who would be willing to accept the risks for providing forecasts where there is a significant chance for death or personal injury. However, in the field of agricultural weather, or for fruit frost warnings where the principle risks are to property, forecasts for these activities have already been widely provided by the private sector, and if the current success and continued employment of such forecasters is any guide, they have been well received by the subscribers.

Senator **Trible**. I thank you very much for your statement. We thank you, gentlemen, for your contribution today.

Let me ask the panel a question if I might. It is very clear, I think, from your testimony and from the observations of this committee that the National Weather Service has a very positive and real impact on the total production of goods and services in America, on our GNP, if you will. In your opinion, is the administration then being penny-wise and pound-foolish in proposing the research and service cuts in this budget submission?

Mr. LEAVITT. As far as the services are concerned, I certainly think so. As I said before, I think the National Weather Service is a very lean agency. In my experience, when I have done my little straw poll as to how much money the National Weather Service and the associated agencies are costing the public, and you ask someone; "How much do you think of our tax money is being spent? The answer I get inevitably is; "Oh, it must be billions of dollars."

Well, in fact, of course, the National Weather Service costs us something on the order of $275 million or $300 million operationally. The other agencies all together, if you include research, barely make $1 billion, I believe, in total Government expenditures for this product. This is a remarkable bang for the buck, I think.

As I indicated in my discussion, I think some reorientation of money can be made, but that is only if they have to make do with the shoestring of a budget that they are working with today. So, to answer your question, I do not think there is very much room for further excision in the budget of the National Weather Service.

Dr. HOSLER. I would like to say, as a person who has been in this field for 40 years now, I guess, there is a general lack of appreciation on the part of people of the breadth of utilization of meteorological information and data.

I would have to say that those who would propose cutting back services just do not appreciate that bakeries schedule, how many pies, cakes, and loaves of bread they bake, based on weather forecasts, that contractors schedule the movement of their personnel and the people who make ready-mixed concrete schedule which part of town they send their trucks to based on very short-range weather forecasts, watching the radar.

It is just integrated in so many ways into our society. Truckers send their trucks on routes that are determined by the least time, least road hazard. Shipping goes the same way. It is so integrated into the fabric of our society. And I do not think the average person in Washington dealing with the normal political and budgetary matters has taken the time to think and to analyze the depth of this penetration and the importance of this weather service not only to the present operation of our society, but to future benefits in terms of productivity, in terms of reduction of hazard.

Dr. FLEAGLE. If I could address just the research aspects of your question, Senator Trible, it seems to me that the knowledge that we now have of our natural environment is essential to the rational choices that we make as a Government and as individuals.

In so many ways, some of which I have outlined in my testimony, this is predictably going to be even more true in the future, as natural resources become more scarce, and the pressure for the use of water increases, as more threats occur through pollution, through affecting the ozone shield, and through increasing carbon dioxide which may affect climate. Even natural variations in climate, which have always occurred, will become more critical to our well-being in the future because of the scarce resources that we must anticipate.

So, it seems to me that the research component, which underlies the skill with which the present weather service operates, is clearly going to be even more crucial in coming decades.

Senator **Trible**. Thank you.

Senator?

Senator **Exon**. Senator, thank you.

Mr. Leavitt, I would like to followup on some of the observations that you made. All three of you have made critical references to the importance of weather, particularly in rural areas. I recognize that the direction of where trucks are going to go in a major metropolitan area is important to the people that run the trucks. It is even more critical to rural America, who seemingly are being overlooked in this.

To show you how critical and important weather is to rural America, in my travels around the United States, I have still found only one television station that follows the pattern of a station in Nebraska. This particular television station broadcasts to the large rural areas. They are the only station that I have ever seen that leads off their 6 and 10 o'clock news every day, regardless of what the major news is, with a 5-minute segment on weather.

Now, all the others, the metropolitan stations, go right into the news, to catch and hold the audience, but this particular station has found, doing research, that weather is the most important thing of all to rural people. That is the news they want first. And then they will take all the rest of the bad news on down the line.

You made an interesting point, I thought, with regard to the data base. Who controls the data base, you said, in essence, also controls the dissemination of information. I think that is an excellent point, because I think it is something that we had better be very much alerted to. We have some information right now that also comes under the jurisdiction of the oversight responsibilities of this particular committee with regard to the data base for the reservations for airlines being controlled by one or two companies.

And at least the initial information that we have—maybe there was not enough research and study done on this, but it shows that it might not be in the best interests of the people of the United States to have that information too tightly held.

I was quite disappointed, though, to hear you say that the weather information had gone downhill. I believe that was the term that you used. I was under the impression that with the advancements that we had had in the research that Dr. Fleagle and others have been involved in, and, I am sure, the other two members of the panel, that basically we were getting much better information than we were a year ago or 5 years ago or 10 years ago.

Could you straighten that out for me? We are getting better information. We are not disseminating it properly?

Mr. **Leavitt**. I am glad for the opportunity to clarify that, because it is very important to our business. We are in the business of disseminating weather information, and what I was referring to is that the quality of observations has gone downhill, and that is very clearly the case.

That is, the quality of the very simple observations of temperature, humidity, and precipitation, which, as I indicated in some areas are not even measured at all because they do not fulfill a particular mission of the observer or the agency the observer works for.

The total information base, though, has improved tremendously if we look at other sources such as the remote sensing aspects. The satellite data, for example, is an incredibly complex and detailed source of data which include the remote soundings being developed by VAS units on the new satellite equipment. The NEXRAD (Next Generation Weather Radar) will provide an additional—an essential ingredient to radar data, the dopler radar, so that they will be able to detect wind speeds in the echoes that they see, and this, of course, will lead to much better severe weather prediction.

This aspect of the observational data base has improved, but what has gone downhill, though, is—one might call it old-fashioned, but still very necessary, the observations of such vital elements as precipitation, and getting this information distributed with anything like the speed available in today's technology.

We have 12,000 cooperative observers out there who make daily observations of temperature and precipitation. Precipitation and temperature extremes are the two most important single observations to agriculture. Ceiling does not have any effect on agriculture. Horizontal visibility, very little effect on agriculture. The particular direction of the wind, not much effect. But temperature and precipitation can be the whole ball game for a crop.

These observations are not as detailed as they were 20 or 30 years ago, and are not as available in real time as today's technology would allow, simply because that has not received the emphasis I think it deserves in the national data collection, and that is one of the areas that we are very strong on trying to promote.

Senator EXON. Did I understand you to say that the Air Force, for example, does not report temperature readings?

Mr. LEAVITT. They take temperature readings; They do not report maximum and minimum temperatures. They got the idea some years ago when we were using a slow-speed technology on teletype circuits, that they could save a little time if they did not report the highest or lowest temperature for the day once a day, as other agencies do. The Navy does, as a matter of fact. The Air Force does not. That was a way to save a little teletype time, but then again, whether it freezes or not, is very easily revealed in the compilation of the minimum observed temperature. It is not transmitted. It may be observed, but it is not transmitted.

Senator EXON. I guess the point you are making is that just a little additional expense, if any, and a little additional teletype time, if necessary, would certainly improve the overall quality of trying to come up with the best answer to the puzzle to tell the people about. Is that the point?

Mr. LEAVITT. That is absolutely so, yes.

Senator EXON. Thank you, Mr. Leavitt.

Thank you, Mr. Chairman.

Senator TRIBLE. Thank you, Senator Exon.

Please, Senator Pressler.

Senator PRESSLER. Thank you very much.

I know that this hearing is not on the issue of commercialization of satellites.

Senator **Trible**. There has been some discussion on that, however.

Senator **Pressler**. Good. Yes. I am aware of that. I am aware that my colleagues have brought that up, and I do not mean to be repetitive, but I have here a study which is marked "Official Use Only." I do not know what that means, exactly. It concluded that commercialization now could inhibit the free market process, and that there is no clear policy or financial benefit to be realized by the transfer.

This is a study that was done apparently for the Associate Deputy Secretary of Commerce, Mr. Michael Bayer, by a number of people, and maybe—I do not know if it would be violating any security clearances, but what does "Official Use Only" mean, first of all? Can you discuss it in a hearing? Is this official?

Senator **Exon**. I do not know, Senator Pressler. I am on the Armed Services Committee, and I know what "Secret Top Secret," and "Classified" are, but I do not know. I cannot answer your question. I do not know what official business is. It sounds like a bureaucratic means to keep it out of the hands of people that they do not want to have it. But I do not know.

Senator **Pressler**. It is not a classification that I recognize. I serve on the Foreign Relations Committee, and we also get a lot of classifications there, but this is not a classification I am familiar with. But in any event, maybe it has some proprietary information in it or something. But first of all, are you aware of this study? Has this study been circulated to you?

Dr. **Fleagle**. No.

Dr. **Hosler**. No.

Mr. **Leavitt**. No.

Senator **Pressler**. Do you have any dealings with the Associate Deputy Secretary of Commerce, Mr. Michael Bayer?

Dr. **Fleagle**. No.

Dr. **Hosler**. No.

Mr. **Leavitt**. No.

Senator **Pressler**. Well, it is a report on the Ad Hoc Government Interagency Panels on Civil Operational Remote Sensing Satellite Commercialization. There are a number of issues in the report that we need to head off. Maybe you people are not prepared to discuss it, but I do hope you will take back to the administration the strong—my strongest feelings. I have put them in the Congressional Record already where I suppose they have not been too widely read.

But what about this? Now, you have covered this already, but is it really the position of the government? This study seems to contradict what the President has said. This study says at one point, "Commercialization now of the satellites would inhibit the free market process. There is no clear policy or financial benefit to be realized." Is that the position of the administration?

Dr. **Hosler**. I do not think any of us can speak for the administration.

Senator **Pressler**. I understand that, but do you have any views on that?

Dr. HOSLER. Well, as we indicated, I think all the people who have testified, we have seen no study which would analyze the costs and the benefits and the problems of coordination, whether there would be such problems. So I do not think any of us are in a position to make a definitive statement whether it be a sound thing to do or not.

I think my statement was it is certainly a subject of proper study, but whether or not it should be sold or not, we do not have the information that would enable us to make that statement.

Senator PRESSLER. I think it would be good, since you are deans and professors—independent analyzers, if the Government would make this study available to you. I wonder, Mr. Chairman, if the committee could recommend that at least copies of this be available to persons such as we have here today who can make some independent analysis of it. Could I make that request? I will do it in writing to the Department of Commerce, but is there a way a committee can make this request, or can I do it now? What is the proper procedure?

Senator TRIBLE. I would recommend to my distinguished colleague that we pursue the matter as a committee, and I am certain there are ways that the official document can be shared for appropriate comment.

Senator PRESSLER. I think it would be particularly good for this panel to review it because they are people independent sources. But I did want to say that, if there is anybody in the administration here, we really have a number of problems that are brought up in this study. It is an official study which seems to contradict the President's position, and one of those is cost savings.

There are legitimate arguments made in the study about whether commercialization of the weather and land remote sensing satellite systems will cost the Government more money than it will save. There are arguments about monopolization. Some of the proposals under consideration involve heavy Government subsidization of a single company. Both the Landsat and the Metsat operations now have a virtual monopoly in their respective markets. This would put the United States in a position of subsidizing monopolies; a curious development in a program designed to encourage private enterprise.

There is the issue of service to the public, the vital weather information and services to the public. There is the issue of foreign relations. There is a host of complex international information agreements between countries regarding the weather satellites, Metsat, that must be reconciled, and the foreign market in land remote sensing is just beginning to take form.

There is an issue in science information. Much of the information now obtained by Metsat and Landsat programs are invaluable to the scientific world and Government information service. But also, this data is not yet marketable in the private sector.

There is an issue of employment. It would be hard to justify a proposal that eliminates jobs, costs the Government additional money and hands ready-made monopolies over to a single corporation. So all these things I think that are mentioned in this Government study would seem to contradict the conclusion of the Secretary of Commerce. I think we need some analysis by independent people such as yourselves. I will write a letter to the Secretary of Commerce urging that the three people here be provided with a copy, and perhaps you could give your comments after reading it. And I would hope that the administration will take into account this study that floated into my office somehow.

And, incidentally, I have legislation that I introduced which would prohibit the transfer of the satellite without congressional authorization. But I do think it is something that we need to get out into the public domain.

Dr. HOSLER. Mr. Chairman, you have two witnesses here in the room who are experts on this satellite business that could shed more light on it than perhaps we can.

Senator TRIBLE. Perhaps it is time to call them forward. If my colleague, Senator Pressler, has no further questions, gentlemen, I thank you for your presence today and for your very fine testimony. There are a number of other questions that I would like to propose today but because of time constraints I would like to submit those to you for the record.

Again, thank you very much.

We have a second panel today on satellite programs, Dr. David Johnson and Dr. Verner Suomi. Good morning, gentlemen, and welcome. Again, may I say that we will make your full statement a part of the record and we would encourage you to summarize that statement or make further observations that may have been brought to mind by the testimony you have heard today. We welcome you.

STATEMENTS OF DR. DAVID JOHNSON, UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH, AND DR. VERNER SUOMI, PROFESSOR OF METEOROLOGY, UNIVERSITY OF WISCONSIN

Dr. JOHNSON. Thank you, Mr. Chairman. I am certainly pleased to be asked to comment on the proposed NOAA budget for 1984 as it relates to the Nation's weather satellite program. As the former Assistant Administrator of NOAA for satellites, I have more than a passing interest in the subject.

Since retiring from NOAA over a year ago, I have been working as a consultant to the Secretary General of the World Meteorological Organization, which has been mentioned by one of the previous witnesses. This is a specialized agency of the United Nations. I am consulting on maintaining and improving the world weather watch. This is the cooperative network, that Peter Leavitt mentioned for the exchange of weather data among all the Nations of the world.

I am also serving as special assistant to the President of the University Corporation for Atmospheric Research, UCAR, which is a consortium of 50 universities that have graduate programs in atmospheric and related sciences. I want to emphasize that I am appearing here in my personal capacity. However, this recent experience has broadened my view of the importance of the satellite system beyond the needs of the U.S. Government.

In particular, I was asked to comment on the administration's proposal to reduce the NOAA polar-orbiting satellite system from the present two-spacecraft system to one. In summary, I think such a reduction would be disastrous not only to the weather services of the United States, but to the many nations of the world which have become dependent on this important source of global weather data.

The compelling reason for a two-satellite system is not the increased data available from double coverage, valuable as this may be. The primary motivation is the need for an inorbit backup. With two satellites in orbit, when one fails, the other is still available.

I might make an aside here that the decision to go to the present two-in-orbit system was reached in, I believe, 1972—it may have been 1973—as a cost-saving maneuver. Up until that time, NOAA operated a single polar orbiter, but there were redundant systems onboard. It was sort of like Noah's Ark; you had two transmitters, two cameras, two of everything, so that when one of them failed, you could switch to the backup unit and then proceed with launching a replacement, thus avoiding an interruption in service.

At that particular point in time, the decision had been made to introduce a new spacecraft which had vastly improved capabilities over the model that had been used up until then. In order to build the new spacecraft, NASA included in its budget a significant amount of money to design and test this new model, the first of a kind. Subsequently, then, NOAA would pay the cost of building operational versions.

So in order to save the money of that one-time investment in the design of a new spacecraft, NOAA and NASA were then directed by the administration to use a spacecraft that had been designed for military purposes and adapt it for the weather mission.

The engineering design of that spacecraft, while it did save the one-time investment, forced NOAA to operate at a lower altitude and with a smaller payload than was planned; thus, you had to launch two spacecraft to provide the complete global coverage, as well as have what we call a fail-soft system. That is, when one spacecraft failed, you still had another that provided most of the global coverage, and you could wait, then, the 4 months or so to launch the replacement.

Now, the new plan calls for a launch on a fixed schedule every 18 months, regardless of the status of the inorbit satellite. Thus, if there were premature failures of the NOAA spacecraft in orbit or the premature failure of one spacecraft followed by a launch failure, there could be a complete cessation of global satellite coverage for a long period of time.

Mr. Winchester said that there was little possibility that this would happen. However, it should be recognized that the NOAA operational satellite system has, in the past, suffered both launch failures and premature inorbit spacecraft failures. So I think if one looks at the record, one would see that indeed, it has a high probability of occurring. The only question is when, and no one can make that prediction.

The polar-orbiting satellites make important contributions to weather forecasting. They not only cover the polar regions, but also provide vertical temperature and moisture soundings over the whole Earth, including inaccessible areas. What would be the impact of a policy to provide only one polar orbiter instead of the two-spacecraft system we have employed so successfully? The most likely result is that a failure of this single polar orbiter or a launch failure would leave us without observations, perhaps for several months, until a replacement could be launched. This key element of the global weather-observing system would collapse with catastrophic results.

Just visualize a time gap with no observations; how are you going to make adequate forecasts? While it is true that there are other data, by far the largest percentage of the total global weather observations comes from this pair of satellites. The whole international weather monitoring structure would be compromised; especially the remote atmospheric sounding measurements made from space, and the location and collection of data from drifting ocean buoys, balloons, and other automatic observing units in remote places. We will have intolerable gaps in our global data base which will impact both operational weather forecasting and some research, such as the global climate program that has been mentioned by Professor Fleagle and will be mentioned by Professor Suomi.

The impact of the total loss of polar satellite coverage would be catastrophic to many other nations as well. More than 100 countries have ground equipment to receive data broadcasts directly from these NOAA satellites. In many developing countries, these data represent the primary source of regional weather observations.

The sounding data that I mentioned earlier are used internationally in numerical weather forecast models which provide basic forecasts of global circulation and weather systems. So it is not just the U.S. weather services that are dependent upon these for the forecast models. This is part of the World Weather Watch that I mentioned, which is being coordinated and planned under the aegis of the WMO. Indeed, the Commission for Basic Systems of the WMO at its meeting in February stated that these satellites are an essential part of the world weather watch. Many feel that without the polar-oribiting satellites on a reliable basis, there indeed would be no world weather watch.

I could go on further about the international aspects. I would like to point out that there are a number of satellites operated by other nations and consortia of nations that contribute to the total weather satellite picture of the world. For example, Japan by itself operates a geostationary operational satellite, India has launched one such satellite that also serves for communications and television purposes. Unfortunately, it failed after a brief time, but they are planning to launch a replacement. The European Space Agency, on behalf of the European nations, operates another geostationary satellite. Even the U.S. polar orbiters that we are talking about have some systems that are contributed by European countries. Both the United Kingdom and France contribute, at no cost to the United States, important subsystems that are used in this observing program. So the global nework of satellites already has many aspects of an international program.

While there may be a possibility of encouraging greater contributions to the U.S. effort from other countries, I think that we have to be aware of the large contribution already being made.

In conclusion, I would like to say that the proposed changes in the U.S. operational weather satellite system, including commercialization which has been proposed, should not be considered as a domestic issue only. This Nation should and does have a responsibility in the larger community of nations. This community should be involved in finding responsible alternatives if, indeed, the United States no longer is in an economic position to continue financing the present system upon which the world has become so dependent.

Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF DR. DAVID S. JOHNSON,[1] UNIVERSITY CORP. FOR ATMOSPHERIC RESEARCH

Mr. Chairman and members of the Subcommittee, I am pleased to be asked to comment on the proposed NOAA budget for FY 1984 as it relates to the nation's weather satellite program. As the former Assistant Administrator of NOAA for Satellites, I have more than a passing interest in the subject. Since retiring from NOAA over a year ago, I have been working as a consultant to the Secretary-General of the World Meteorological Organization (WMO), a specialized agency of the United Nations, on maintaining and improving the World Weather Watch, and as a special assistant to the President of the University Corporation for Atmospheric Reasearch (UCAR), a consortium of 50 universities. While I am appearing here in my personal capacity, this recent experience has broadened my view of the importance of the satellite system beyond the needs of the U.S. Government.

In particular, I was asked to comment on the Administration's proposal to reduce the NOAA polar orbiting satellite system from the present two-space craft system to one. In summary, I think such as reduction would be disastrous, not only to the weather services of the United States, but to the many nations of the world which have become dependent on this important source of global weather data.

The compelling reason for a two-satellite system is not the increased data available from the double coverage, valuable as this may be. The primary motivation is the need for an in-orbit back-up. With two satellites in orbit, when one fails the other is still available. When a polar orbiter fails, present operating procedures call for a second weather satellite to be launched as soon as possible. This takes a minimum of four months when an expendable launch vehicle is used; it would take much more time with a shuttle launch. If there should be launch failure, present operating procedures call for a third weather statellite to be launched, and the process continues until two operating satellites are again in orbit. With this type of operational plan, the United States has been able to maintain at least one operating polar-orbiter in space at all times.

The new plan calls for a launch on a fixed schedule, every 18 months, regardless of the status of the in-orbit satellite. Thus, if there were premature failures of the NOAA spacecraft in orbit, or the premature failure of one spacecraft followed by a launch failure, there could be a complete cessation of global satellite coverage for a long period of time. It should be recognized that the NOAA operational satellite system has in the past suffered both launch failures and premature in-orbit spacecraft failures.

The polar-orbiting satellites make important contributions to weather forecasting. They not only cover the polar regions, but also provide vertical temperature and moisture soundings over the whole earth in inaccessible areas, including the data sparse oceans. What would be the impact of a policy to provide only one polar oribter instead of the two-satellite system we have employed so successfully? The most likely result is that a failure of this single polar orbiter or a launch failure would leave us without observations—perhaps for several months—until a replacement could be launched. This key element of the global weather observing system would collapse, with catastrophic results. For example, we would have zero atmospheric sounding coverage over most of the oceans. Storms, including hurricanes, come to us from the Pacific and the Atlantic.

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[1] These remarks are made in Mr. Johnson's personal capacity and do not represent the views of the University Corp. for Atmospheric Research or the World Meteorological Organization.

The whole international weather monitoring structure would be compromised, especially the remote atmospheric sounding measurements made from space and the location and collection of data from drifting ocean buoys, balloons, and other automatic observing units in remote places. We will have intolerable gaps in our global data base which will impact both operational weather forecasting and some research such as the global climate program.

The impact of the total loss of polar satellite coverage would be catastrophic to many other nations as well. More than 100 countries have ground equipment to receive data broadcasts directly from the NOAA satellites. In many developing countries, these data represent the primary source of regional weather observations. The sounding data I mentioned earlier are used internationally in numerically weather forecast models which provide basic forecasts of global circulation and weather systems. This is part of the World Weather Watch under the aegis of the WMO. Indeed, the Commisssion for Basic Systems of the WMO states that these satellites are an essential part of the World Weather Watch.

Thus, proposed changes in the U.S. operational weather satellite system, including commercialization, should not be considered as a domestic issue only. This nation should and does have a responsibility in the larger community of nations. This community should be involved in finding responsible alternatives if, indeed, the United States no longer is in an economic position to continue financing the present system upon which the world has become so dependent.

[The following information was subsequently received for the record:]

QUESTIONS OF THE COMMITTEE AND THE ANSWERS THERETO

Question. You and other experts have stated that the primary rationale for a two-satellite system is the need for an in-orbit backup. The Administration argues that polar satellites are usually operational for 2 years and that the possibility of failure is minimal. (a) Given the different views on this matter, don't you think that a study on the effects of a one versus two-polar satellite system on weather forecasts is in order? (b) Could you estimate what such a study would cost?

Answer. I do not believe at issue is the question of the importance of polar satellite data on weather forecasts. The question is will there be a complete interruption in the coverage by polar satellites with the proposed reduction to a one-satellite system? One could perhaps do an independent and objective study of the probability of a total system failure. As I understand it, the Administration believes the risk is minimal. However, based upon demonstrated lifetime of spacecraft, and the record of launch failures to date, I believe the probability of failure is too high. It should be possible to calculate rather quickly what the probability is, based upon past performance of NOAA, and similar NASA and DOD spacecraft and launchings.

The simple type of calculation described in the answer to question 1.(a) should require no more than one or two months' time of a competent analyst at a cost of $10,000–$20,000.

Question. You state that NOAA satellites have suffered launch and in-orbit failures. (a) With the new plan that calls for satellite launches on a fixed schedule of every 18 months, what impact will this have on weather and climate services? (b) what was the former schedule?

Answer. The main impact of a fixed schedule of launches every 18 months comes if there is a sequence of premature spacecraft failure and a replacement launch failure. As I indicated in my testimony, such a sequence could result in no polar satellite data being available at all for a period of several months and perhaps more than a year. With this possibility, most meteorological services cannot depend upon the polar orbiter in planning their operations. If they cannot count on it they cannot depend upon it. Alternate, albeit inferior, methods of acquiring weather data would have to be arranged. In large areas of the world, there are no economically feasible alternate methods. As Professor Suomi pointed out in his testimony, large data gaps in the record of climate would seriously compromise our ability to study and detect climate change.

Under the former (present) schedule, two satellites are kept in orbit at all times. When one of the satellite fails, a new replacement satellite is launched. The time from failure until the new satellite is available for service is about four months. The second satellite in orbit continues to provide coverage during this four-month period. Of course there is still a probability that the second spacecraft in orbit would fail before the replacement could be launched; however, this probability of failure is much lower than with the scheme now proposed by the Administration.

Question. As a consultant to the World Meteorological Organization (WMO), can you tell us if the WMO has discussed the possibility of other countries, particularly those that utilize satellite data, providing funds for polar-orbiting weather satellites?

Answer. There have been informal discussions within WMO circles regarding ways in which various countries can share in the provision of satellite services. Actually, most countries of the world utilize the satellite data. Up to the present time, there has been a sharing of spacecraft and subsystems among the various countries. The United Kingdom and France each provide a major subsystem on the current series of NOAA polar-orbiting weather satellites. These are provided at no cost to the United States as their contributions to an internationally necessary system. The European countries through the European Space Agency, and Japan each operate a geostationary weather satellite. The USSR is developing a geostationary satellite to cover the Indian Ocean area, and India plans to launch their second INSAT, which includes a meteorological cloud camera, to provide geostationary satellite coverage of the Indian Ocean. These satellites, coupled with the two geostationary (GOES) satellites operated by NOAA, provide cloud coverage around the earth except at high latitudes. Thus, the full international cooperative system of weather satellites now is being provided by a series of coordinated national contributions of hardware and services. International concern over proposed U.S. actions to reduce the reliability of the weather satellites in polar orbit, as well as to transfer all its weather satellites to the private sector, may result in the WMO members considering some form of "internationalized" system whereby they will no longer be vulnerable to unilateral decisions of any one nation.

Question. You mentioned that polar satellites locate and collect data from drifting ocean buoys, balloons, and remote observing stations as well as provide weather data. How important are the data from these remote and mobile stations and the role of the polar satellites to weather forecasting and climate research?

Answer. The use of polar satellites to locate and collect data from drifting platforms is particularly critical in the southern hemisphere and tropical regions where very few observations are now available from land and ship stations. To forecast the weather beyond a few days or to study the climate of planet Earth, complete global coverage is essential.

Question. (a) Would you elaborate on the joint NOAA/NASA program to develop and launch NOAA satellites? (b) Has this been an effective system—or, more precisely, what problems in this program have been encountered in the past?

Answer. The joint DOC(NOAA)—NASA agreement regarding the weather satellite program calls upon NASA to develop and prove the technology needed for operational weather satellites. NASA would fund this development as well as the construction, launch, and test of any new prototype of an operational spacecraft or sensor. Subsequently, NOAA would budget for the cost of follow-on operational spacecraft and launching and the entire cost of operations. NOAA would "contract" with NASA to obtain the operational spacecraft and for their launching according to NOAA specifications. NOAA was responsible for the conduct of the operations, applied research to improve the utilization of satellite data in weather forecasting and other applications, and the processing and use of the satellite data.

This joint effort has been an outstanding success and has worked smoothly until beginning in fiscal year 1982 when a change in NASA priorities and funding took place. At that time, NASA ceased to budget for their portion of the agreement and left it to NOAA to pick up the funding of the development of operational spacecraft and sensors. NASA indicated they would be willing to do the development work provided NOAA would obtain and transfer the necessary funds to NASA. In the current fiscal climate, there is no way in which NOAA could pick up the large increment of funding dropped by NASA. There is also a question in my mind regarding the mission of NASA under the Space Act.

Question. You state that 100 countries receive NOAA satellite data, and that many developing countries rely on these data for regional weather predictions. What would the effect on the nations of the developing world be if the polar-orbiting satellite system were downgraded to a one-satellite system?

Answer. The problem is not with one satellite in orbit but if that one satellite failed prior to the next scheduled launch. And more importantly, if the next launch were to fail there would be a period of more than 18 months with no polar satellite data at all. It is this total absence of data for an unpredicted period of time that would have a major impact on storm warnings and weather predictions throughout the world, but particularly in many developing countries that tend to be located in the tropics or the Southern Hemisphere where very little other weather data are available. These countries, which have become so dependent upon this dramatic space age contribution of the United States, in most cases would have no recourse to alternate forms of observations.

Senator TRIBLE. Thank you, Dr. Johnson. Dr. Suomi?

Dr. SUOMI. Thank you, Mr. Chairman, for this opportunity to say a few words on the NOAA budget, and again, especially on the impact of the Nation's weather satellite program.

As I say in my testimony, these words are my own, but the general thrust of my testimony reflects the views of the National Academy of Sciences Board on Atmospheric Sciences and Climate. The Board has expressed a willingness to look into the impact of commercialization of the Nation's weather satellite program; however, they have had no information on this subject presented to them so far, so any words to regarding commercialization will be my own.

Some of this is a little repetitious with Dave Johnson, my dear friend who had a copy of my written testimony first.

Well, Mr. Chairman, we find—and now I am speaking for the Academy's views—that the budget is neither realistic nor responsive to the scientific opportunities and the national needs. I will elaborate on this by briefly discussing the program's health, its uniqueness and where the problems are and what might be done about them.

We must first say, as the others who have appeared before us, that there is a very positive side and much of it has come thanks to the success of the global weather experiment which the Congress endorsed some years ago. We can say that both the polar and geostationary weather satellites have made it possible to improve the accuracy and extend the range of weather forecasts of large storms. These results—and they are very impressive—have been obtained thus far in the research mode.

Some of these improvements have already been made in our operational forecasts, but we can expect even greater improvements in the future as these new findings are made operational. However, this is not the time to go into details because in my view, these advances will never be realized if the present budget is put in place.

I could easily talk about this for a long time and describe the contributions both the geostationary and the polar orbiters have made, but Dr. Johnson has already talked about this. I really want to reemphasize the impact of a policy to provide only one polar orbiter instead of the two-satellite system we have employed so successfully. The key issue is that failure of this single polar orbiter would leave us without observations. You have to appreciate that our geostationary satellites cover the United States and a little of the Pacific, some of the Atlantic, but it is the polar orbiter which covers the globe and where we get our data from to make longer range predictions.

We are learning that the weather over Indian ultimately affects us in the United States. You have heard others before me say that things going on in the western Pacific affect the climate and the weather over the United States. So to give up the polar orbiter for a long time would be tragic.

This key element of the global weather system would collapse with catastrophic results. We would have zero soundings coverage over the ocean. The ocean is where we have a great deficiency of data. Over the populated countries particularly of the Northern Hemisphere there is pretty good data from balloon soundings and so on. But over the large reaches of the ocean—and three-quarters of the Earth is ocean—we would have very serious gaps.

The whole international weather surveillance structure would be compromised not only for these remote atmospheric soundings from space, but also, the location and collection of data from drifting ocean buoys, balloons, and automatic observing systems in inaccessible places or even on ships which are moving since the system allows the location of the ship and as well as transmission of the data it collects.

All this is bad enough for day-to-day weather forecasting. Its impact on the global climate data sets being collected is even worse. A gap in a climate record, as Mr. Leavitt has said, destroys it for a significant period on each side of the gap. How can one get an average when important data which contribute to that average are missing?

I must say that the satellite program is sick in other respects from these cutbacks. The innovative arrangement between NASA and NOAA which worked so well until a few years ago to provide new instrument development, prototypes of NOAA operational satellites and procurement services for NOAA, has been almost totally abrogated. Weather satellite development is not only on the back burner, Mr. Chairman, but the back burner is almost out.

What is so difficult to understand, as others have alluded to here, is that atmospheric science research programs in NSF and NASA and other agencies have all gone up while the NOAA budget, which provides much of the precious research data—is collected operationally—These important research programs' data needs will be cut.

If you now have the impression that the present situation leaves much to be desired, the future is even more bleak. The long term is bleak because there are not only no new approved developmental spacecraft, but there are not even any approved plans addressed to the future. In that future—we must not only be concerned with the atmosphere, but with the oceans as well. The oceans are the great heat storage flywheel of the climate system. They cannot be ignored as we try to improve our understanding of seasonal and interannual climate variations so important to society.

Advances in ocean observations are essential if we want to predict climate fluctuations and understand mankind's influence on climate. We already know that important ocean surface parameters can be measured from space. These include the surface topography of the ocean, which is the only way of examining the large-scale ocean circulation and its variations, and the wind stress at the sea surface, which provides the motive force for these currents. What is missing is a unified, well-integrated program for the future which puts all these inter-related observations of the Earth together. We must know the state of the atmosphere, the ocean, the icefields, the biosphere at more or less the same time. Our foreign colleagues are moving forward in some of these areas.

However, in order to get the full impact of all of these developments, we not only need a clear program for the future of our own, but a program that meshes effectively with those of Japan, Europe, and others who are making important contributions. There are opportunities for a few impressive shorter range opportunities that are being passed by in the NOAA budget. An additional major contribution of the polar orbiters is their ability to carry an advanced microwave sounding unit that can obtain the atmosphere's temperature and moisture structure through most clouds. The present microwave sounders are crude compared to what the technological advances now make possible. These sounders can measure the intensity of cloud-shrouded hurricanes and help determine the atmospheric structure which controls their path. They will help provide better forecasts of severe weather because often severe weather is also buried in active cloud systems.

Polar orbiters cannot view severe storms continuously, as a geostationary satellite system can. But even so, they provide key information on the progress of storm development. What we really need, however, is a microwave sounding unit at geostationary altitude. The radiometer technology is already available and all we need is a large—but not impossibly large—antenna. With the ability to see through clouds continuously to provide the structure of severe storms themselves, as well as that of the atmosphere in which they are embedded, we will be able to utilize mathematical models of severe weather systems as effectively as we now use forecast models of large-scale weather. In the meantime, NOAA ought to move forward with the operational use of the new infrared sounder, called VAS, which is on the current series of geostationary satellites.

Really significant improvements in both weather services and research efforts are possible. These are not idle dreams; these advances are realizable before the end of the century if we choose to grasp the opportunities within our reach.

I could dream further about what is possible in the future, but I must again call your attention to the budget of the present. These needs for the future, Mr. Chairman, pale in comparison with the urgency of saving the present. A slip backward, which the present budget will surely force, will take us a long time to recover from. Mr. Chairman, I urge you and your committee to do what is necessary to prevent what I can only term a tragedy for the atmospheric sciences and climate research.

Now, I would like to add a couple of words, and these are my own. The Earth is so precious that we cannot move backward on the need to better understand the health of the Earth. We are the only planet with water, with life, with love, unfortunately also with conflict. We need to make this imperfect world work better. Cutting back, particularly where so much could be done on this understanding, is like putting our head in the sand.

Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF VERNER E. SUOMI, PROFESSOR OF METEOROLOGY, UNIVERSITY OF WISCONSIN

Thank you, Mr. Chairman, for the opportunity to say a few words on the NOAA budget, especially its impact on the nation's weather satellite program. While these words are my own, the general thrust of my testimony reflects the views of the National Academy of Sciences' Board on Atmospheric Sciences and Climate.

Mr. Chairman, we find the budget neither realistic nor responsive to scientific opportunities and national needs. I will elaborate on this topic by briefly discussing the program's health, its uniqueness, where the problems are, and what might be done about them.

On the positive side, thanks to the success of the Global Weather Experiment, we can say that both polar and geostationary weather satellities have made it possible to improve the accuracy and extend the range of weather forecasts of large storms. These results have been obtained thus far in the research mode. While some improvements have already been made in our operational weather forecasts, we can expect even greater improvements as new findings from research are made operational. This is not the time to go into details, because these advances will never be realized if the present budget is put in place.

With more time, I could show you illustrations of the important contributions the polar-orbiting satellites make to weather forecasting. They not only cover the polar regions, but also provide vertical temperature and moisture soundings over the whole earth in inaccessible areas and over the data sparse oceans.

What would be the impact of a policy to provide only one polar orbiter instead of the two-satellite system we have employed so successfully? The key issue is that a failure of this single polar orbiter would leave us without observations—perhaps for as long as 18 months—until a replacement could be launched. This key element of the global weather observing system would collapse, with catastrophic results. For example, we would have zero sounding coverage over the oceans. Storms come to us from the Pacific, but hurricanes come to us from the Atlantic.

The whole international weather surveillance structure would be compromised, not only the remote atmospheric sounding measurements made from space, but also the location and collection of data from drifting ocean buoys, balloons, and automatic observing systems in inaccessible places. We will suddenly have an intolerable "gaposis" in our global data base. This is bad enough for day-to-day weather forecasting, but its impact on the global climate data sets being collected is even worse. A gap in a climate record practically destroys it for a significant period on each side of the gap. How can one get an average when important data which contribute to that average are missing?

The satellite program is also sick in other respects. The innovative arrangement between NASA and NOAA which worked so well until a few years ago to provide new instrument developments, prototypes of NOAA operational satellites and procurement services for NOAA has been almost totally abrogated. Weather satellite development is not only on the back burner, Mr. Chairman, but the back burner is almost out.

What is so difficult to understand is that the atmospheric science research programs in NSF, in NASA, and in other agencies have all gone up, while the NOAA budget which provides much of the precious operational data these research programs urgently need is being cut.

If you now have the impression the present stituation leaves much to desired, Mr. Chairman, the future is even more bleak. The long-term program is bleak because there are not only no new approved developmental spacecraft, but there are not even any approved plans addressed to the future. In that future, we must not only be concerned with the atmosphere but with the oceans as well. The oceans are the great heat storage flywheel of the climate system; they cannot be ignored as we try to improve our underderstanding of seasonal and interannual climate variations so important to society. Advances in ocean observations are essential if we want to predict climate fluctuations and understand mankind's influence on climate. We already know that important ocean surface parameters can be measured from space. These include the surface topography of the ocean, which is the only way of examining the large scale global ocean circulation and its variations, and the wind stress at the sea surface, which provides the motive force for these currents. What is missing is a unified, well intergrated program for the future which puts all these interralated observations of the Earth together. We must know the state of the atmosphere, the ocean, the ice fields, and the biosphere at more or less the same time. Our foreign colleagues are moving forward in some of these areas. However, in order to get the full impact of all of these developments, we not only need a clear program for the future of our own, but a proram that meshes effectively with those of Japan, Europe, and others who are making important contributions.

Let me now return to a few of the impressive shorter term opportunities that are being passed by in the proposed NOAA budget. An additional major contribution of the polar orbiters is their ability to carry an advanced microwave sounding unit that can obtain the atmosphere's temperature and moisture structure through most clouds. The present microwave sounders are crude compared to what rapid technological advances now make possible. These sounders can measure the intensity of cloud-shrouded hurricanes and help to determine the atmospheric structure which controls the hurricane's path. They will help provide better forecasts of severe weather because often severe weather is also buried in active cloud systems.

Polar orbiters cannot view severe storms continuously as a geostationary satellite system can, but even so, they provide key information on the progress of storm development. What we really need, however, is a microwave sounding unit at geostationary altitude. The radiometer technology is already available, and all we need is a large—but not impossibly large—antenna. With the ability to see through clouds continuously to provide the structure of severe storms themselves as well as that of the atmosphere in which they are imbedded, we will be able to utilize mathematical models of severe weather systems as effectively as we now use forecast models of large-scale weather systems. In the meantime, NOAA ought to move forward with the operational use of the new infrared sounder—caled VAS—which is on the current series of GOES geostationary satellite. Really significant improvements in both weather services and research efforts are possible. These are not idle dreams; these advances are realizable before the end of the century if we choose to grasp the opportunities within our reach. I could dream further about what is possible in the future, but I must again call your attention to the budget of the present.

These needs for the future, Mr. Chairman, pale in comparison with the urgency of saving the present. A slip backwards, which the present budget will surely force, will take us a long time to recover from. Mr. Chairman, I urge you and your committee to do what is necessary to prevent what I can only term a tragedy for the atmospheric sciences and climate research.

[The following information was subsequently received for the record:]

QUESTIONS OF THE COMMITTEE AND THE ANSWERS THERETO

Question. Could you elaborate on the contributions that the polar-orbiting satellites make to weather forecasting?

Answer. The polar orbiting satellites contribute to improved weather forecasting three main ways.

They are the only satellites that provide complete earth coverage. We now have four geostationary satellites, but there is no coverage over the Indian Ocean or the polar regions. Also these geostationary satellites, except our own, cannot give the moisture and temperature structure of the atmosphere. The polar orbiters give cloud images, both day and night, and the atmospheric temperature and moisture structure. Without this information, accurate extended forecast is not possible. Also, the polar orbiters have a microwave temperature and moisture sounding capability, in addition to the infrared sounders. They have the important advantage that with microwave, one can get soundings in areas of extensive cloud cover. In clear areas or between gaps in clouds, IR sounders give good results, but the microwave sounder removes large gaps in the data where there is extensive cloud cover. This happens often over the U.S. during winter and around major storm systems (e.g., hurricanes).

Further, the microwave sounder acts as a quality control on the IR sounder in partly cloudy regions. It is easy to degrade the IR sounder to give the same vertical resolution as a microwave sounder. If the two do not agree, we have a basis for rejecting the IR sounder data. If they do agree, we have a basis for trusting the better IR sounder at that point. This seems like a fine point, but there are really three kinds of data: good data, bad data, and no data. No data is better than bad data, and the microwave tells us which is which. However, if we have failure of the only microwave sounder in the sky, we have a catastrophic failure. The whole global forecast system breaks down completely. A one-polar-satellite system is completely unsatisfactory for both the reasons I have given.

Question. How heavily does the Global Atmospheric Research Program (GARP) rely on polar and GOES satellite data? If the polar oribiting system were reduced to a one-satellite system, what would be the impact on GARP?

Answer. The Global Atmospheric Research Program relied very heavily on both polar and GOES data. The heavy data collection portion of the program was completed in 1980. Intensive research is now underway with those data. In order to test these findings, we must again have global satellite coverage. One of the important findings showed that data obtained every 3–6 hours caused a significant improvement over data collected only every 12 hours. This improvement occurs because the exact position of a storm does not necessarily fit to a grid point in the model, and thus an error is introduced. Further, more frequent data insertion into a model molds the model's behavior to the dynamics of the real atmosphere. Thus, having more frequent observations makes the initial fit and dynamical behavior better and gives an extra day in the length of the forecast.

A critical reason for two polar orbiters is the impact of failure. With two in the sky, the failure is soft—we can get along, but with a degraded output for reasons I've just mentioned. NOAA satellite data are a crucial input to ocean research, and the impact of the ocean on weather and climate is important.

Question. You state that atmospheric research program budgets in NASA and NSF have gone up, while the budget for NOAA satellite data on which these programs rely is being cut. What will be the ultimate effect of the NOAA budget cuts on NASA and NSF atmospheric research programs?

Answer. The effects will be ill effects and will be very large. Meteorology is a science where we need a lot of highly perishable data from all over the world, quickly. No one research institution can gather its own data. The atmospheric sciences rely almost completely on data collected by the operational component of our weather service, both here and abroad. While the opportunities for research improve, the NOAA budget removes these opportunities. For example, we have had and again will shortly have two GOES satellites equipped with high temporal resolution VAS IR sounders for improved severe storm forecasting. However, we have only one operational ground station to receive this fabulous data. Why? Largely because of penny pinching. To make matters worse, this ground station represents 1975 technology. When it works, it barely works. The improvements in technology over the last decade are phenomenal, and penny pinching here keeps us from fully exploiting the new satellite capabilities. The budget cuts in NOAA will directly affect the NASA and NSF research programs since they will impact the data availability.

This data loss will impact a variety of research efforts: (1) medium range weather forecasting, (2) stormscale forecasting, (3) hurricane research, and (4) climate research. The NOAA satellites give much more than cloud cover and temperature and moisture sounding. They are also used for sea surface temperatures needed in climatology and for the fishing industry.

Question. Could you elaborate on the value of NOAA satellite data to NOAA ocean research and the importance of ocean research to our understanding of weather and climate processes?

Answer. I have already mentioned sea surface temperature observations. These can now be obtained with an accuracy better than 1 degree C, and with an extended effort, perhaps better than 0.5°.

It is thought that ocean temperature anomalies cause changes in our climate. This seems to be true for the equatorial Pacific in an effect called the El Nino. The temperature anomalies tend to be small—typically not more than a couple of degrees. In order to detect these small differences, one must remove the effects of water vapor from the view to the surface. This can be done with both our polar orbiters and the new VAS instrument on GOES.

In addition, one can now get fair estimates of evaporation by making use of winds defined from the drift of low level clouds and the water vapor in the column measured by satellite sounders (i.e., the ocean hydrological budget).

As I mentioned in my testimony, the oceans are the great thermal flywheel, and there cannot be any meaningful climate research without accounting for the heat stored in the ocean and transported by the ocean. NOAA's El Nino depends heavily on the satellite data.

Question. What is the impact of NOAA's satellite budget on other atmospheric research programs within NOAA, such as severe weather forecasting, ocean climate research, and the National Climate program?

Answer. The satellite has an enormous impact on other atmospheric research programs within NOAA. I have already addressed such impacts in my respose to question 4. To illustrate some of these effects on both severe weather forecasts and hurricane forecasts, I am including some diagrams.

Question. Isn't it incongruous that the Administration has requested increases in all of these programs, yet requested budget cuts for the satellite programs which provide data essential to the operation of these research programs?

Answer. Yes. Of course it is. Weather satellites should be considered as part of our space program. Their costs cannot be measured in terms of how many weather stations we must close to pay for them. Every citizen gets the benefit of these satellits every day from the views he sees on the weather broadcast each day. If we can afford to probe the atmosphere of Venus and Jupiter (with which I heartily agree), then we can afford to probe our own atmosphere for both applications and research.

Question. Would you, too, like to respond to the question asked of Mr. Johnson about the NOAA/NASA satellite design and launch relationship?

Answer. Yes. I would like to reply further on the NOAA/NASA satellite design and launch question and do so in some detail. Since I am leaving today for a three-week trip to Brazil, I will not be able to give it the attention it deserves now. I would be happy to respond further when I return.

Senator TRIBLE. Thank you, Doctor.

Senator Pressler.

Senator PRESSLER. Thank you very much for allowing me to go first. I have another meeting to go to and I appreciate it very much.

Let me just for a moment ask a theoretical question about weather reporting. If we were to have this on a free market basis, if we were to, let us say, turn it all over to private industry, or some of it, would it not mean that agricultural areas would ultimately get less because it would be so expensive? I mean, you might have good weather reporting for New York City, where you could sell the information to large radio stations where they have big advertisers. But some of the soil and water conservation needs, some of the soil moisture information, some of the weather reporting, is so critical to agriculture, not only on a daily basis but a yearly basis.

Would that be really a problem if we tried to put that on a private enterprise basis?

Dr. SUOMI. Well, it is clear that if it were on a private enterprise basis it would have to make use of the play of the marketplace. Unfortunately, little of the large pile of information I have on the commercialization of satellites deals with the technical, the scientific details of the sensors, the orbits, the operating schedules and the like.

Little has been mentioned by the commercial entities pushing this move. It is impossible to assess the impact of commercial utilization without this information, and we may be buying something we do not really understand. So there is a great deal of concern about that.

Now, in some of the material that I have seen there is a request, for which I have a serious concern, that data on weather and the Earth be subject to copyright, and copyright protection. In one statement they are even pushing for exemption to the Freedom of Information Act. This flies squarely in the face of a long tradition of free international exchange of weather data.

So your concerns are well warranted and it seems to me that what this committee could do is to be sure that in a series of hearings that you might conduct, that we hear all aspects of the program that is being proposed.

Senator PRESSLER. The other part of that question is, as you know there has been some discussion this morning about commercializing specialized weather services, such as detailed wind pattern forecasting, soil moisture content information, and other weather services that are vital to our Nation's farmers and small businessmen. And you have commented on that.

I would like to ask you also, as professionals in this business to what extent do you think these services should be commercialized? If not entirely, should parts of them be commercialized? And how could this be done while still guaranteeing availability of the service to all users?

Is there any in-between ground?

Dr. JOHNSON. Well, it is very difficult to establish neat boundaries. I think that probably one should never expect to establish neat boundaries. I think that, as Peter Leavitt mentioned, it is an evolutionary thing. You try. You may make adjustments from time to time as you see how things develop.

I am not aware of any people in our profession, those that I know well anyway, who feel that the Government should abrogate its responsibility to provide at least the basic weather services of this Nation. The problem is to define what is the extent of that basic service. Does it go to general forecasts for major sectors, like aviation and agriculture?

You cannot consider the answer without getting into the technical details, as Professor Suomi said. You have to have experts take a look at how all of these services are performed and all of the steps required in providing these services, and see whether there are any reasonable scientific and technical options that could perhaps allow some of these services to be as effectively or maybe even more effectively done in the private sector.

But I think it has to be done with very great care and study. It is nothing that you would want to implement as sort of a snap decision "off the top of your head".

I think that one also has to be careful about any major separation of the observations from the production of the forecasts. That is one of the areas that would concern me with the current proposal. Admittedly, we have no information on the details of the proposal to so-called "commercialize" the weather satellite system.

Senator PRESSLER. So are you saying we should not commercialize any part of the Weather Service?

Dr. JOHNSON. I did not say that, Senator. I said that it should be done with great care, considering the intricacies of the total system and how it goes from observations through forecasting to dissemination, what the interfaces are at each point, what is the interface with the ultimate customer, and how could you effectively do that in light of new technology.

Dr. SUOMI. I would like to add to that. Clearly, there is a role for the private sector. It has been already done fairly well in the distribution of general weather information through the communications branch of our economy.

But there are also other possibilities. There is a great need on the part of the private sector who work with details to have access to all the data they need. I think Mr. Leavitt made quite a point of that. And it is perfectly possible for such a group to be responsive, much more responsive to very specific needs, and they can therefore massage the data in a form which makes it very valuable to their potential customer.

Clearly there is a real role here, because a special service is being rendered. We note that data is being converted into information and information has value, and the private sector would certainly help create this information and distribute it to the people who want it. So there is a role, I believe, for the private sector.

It would be advanced greatly if the data could be made more accessible for their use, rather than to have some restriction on it, which the general commercialization might in fact do.

Senator **Pressler**. Mr. Chairman, I would again ask that committee staff try to find out if we can make this study available. It is the study that was prepared and signed by Earl Peck, Major General, Director of Intelligence and Space Policy, Department of Defense, and by Kathleen Charles, Deputy Comptroller of Goddard Space Flight Center, National Aeronautics and Space Administration.

If it is appropriate, I would like it to be made available to the witnesses to give a written response later. This says many of the same things that the witnesses are saying. It is an interagency Government report dated 10 November 1982, that seems to contradict everything that is coming out at the top.

Senator **Trible**. Without objection, it is so ordered, and that assignment will be undertaken by the staff.

Senator **Pressler**. Great.

My last question is: In view of this study and others, how long do you think it would take to complete the proper studies and analyses—of course it is an ongoing thing, but before we venture into selling part of our weather services, what kind of studies would be appropriate to precede such an act?

Dr. **Suomi**. Well, I would think that a very thorough study would have to be made, and as I indicated early in my testimony, I am quite confident that the Academy group, the Board on Atmospheric Sciences and climate of which I am a member would be willing to look into this matter.

They clearly indicated a great interest on the possible impact of commercialization, but at this stage have very little information and so have no position. They want, if possible, to have much more information before they come up with a position. So I would think you would have to deal with their staff to see what the time response would likely be.

Senator **Pressler**. Thank you, Mr. Chairman. I have no further questions, unless the witnesses are able to respond in writing later to this study.

Senator **Trible**. Thank you, Senator Pressler.

Gentlemen, we thank you for your testimony today. You are distinguished witnesses, and your statements and observations will add immeasurably to our understanding of these issues.

With that, we will adjourn our meeting today. Thank you very much.

[Whereupon, at 11:35 a.m., the committee was adjourned.]

ADDITIONAL ARTICLES, LETTERS, AND STATEMENTS

STATEMENT OF HON. GEORGE J. MITCHELL, U.S. SENATOR FROM MAINE

Mr. Chairman: I strongly urge the Committee to reject the effort to downgrade the eight Weather Service Forecast Offices around the country as envisaged in the Administration's budget proposal.

This proposal is identical to the one made last year. Last year, Congress was persuaded that the cost savings involved, which are relatively minor, were simply not justified, given the safety risks such a downgrading would cause.

I am not familiar with conditions in other parts of the country, but the situation in Portland, where one of these Forecast Offices is located, is no different this year than it was last. I will briefly summarize the problems associated with the proposal as they affect Maine and New Hampshire.

The Portland Forecast Office serves both Maine and New Hampshire. It is the relay station for three NOAA Weather Radion stations in the area as well.

Downgrading will result in the loss of half the staff manning the Forecast Office now. This means the loss of six professional meteorologists. That halving of the workforce will require that the entire aviation forecast program be transferred to Boston. Given the simultaneous downgrading proposed for a weather station in Albany, whose aviation forecast functions would also have to be transferred, this would essentially double the workload at Boston, without a commensurate doubling of Boston's resources. Boston forecasters will continue to coordinate with the downgraded offices at both Portland and Albany, so the net result will be more time spent in consultation, less time for adequate forecast preparation, and a greatly inferior product, not only for Maine and Northern New England, but also for the Southern New England region.

The Portland Forecast Office now prepares seven domestic terminal forecasts, one international terminal forecast, and three inflight route forecasts daily. It is illusory to claim that this workload can be "absorbed" by an already busy station in Boston without impairing the final product.

In an area such as New England, where fog and severe winter weather hazards are a common fact of life, such a "saving" in dollars can only be made at a risk to human safety that is intolerable.

Additionally, fog and winter storms directly affect coastal shipping, including both commercial fisheries vessels and private craft. The Northern New England coastline is a resort area and the citizens who use that area have a right to the essential boating advisory services that the Forecast Office now provides. I do not need to emphasize that our fishermen use that service virtually year-round. Their lives depend on it.

New England is a unique region of the country because most of the storm tracks that traverse the Continental United States converge over the Northeast. No matter at what point storm systems enter the atmosphere over the United States, they usually end up in the Northeast. And they are virtually always large enough and close enough to directly affect weather over New Hampshire and Maine. The Portland Forecast Office, were it to lose half its manpower, would not be capable of updating essential information promptly, nor of issuing storm warnings in a timely fashion.

The severity of our storms means that less frequent updating of information is not just a minor inconvenience, but presents a direct threat to life when fishermen at sea do not know high seas are expected, or when travelers on remote country roads are not warned that a blizzard may immobilize their autos.

The personnel cuts would also mean that the Portland Office could not be manned around the clock to the point of assuring that the telephones could always be answered. The implication of that is clear. If the telephones cannot be answered, NOAA Weather Radio would not be alerted, for instance, to such an occurrence as an accident at Maine Yankee nuclear power plant. The Portland Forecast Office now serves as the dissemination point to relay such information to the NOAA Weather Radio stations.

Maine and New Hampshire farmers, like farmers everywhere, rely on timly warnings or frost or precipitation to conduct their day to day operations. Dairy farmers need to know when hay curing is possible. Grain and potato growers are dependent on sudden weather shifts. Weather forecasting is a service the government has provided to its citizens for many years, and it is difficult for me to understand the justification in justify diminishing the quality of such a service to northern New England.

Last year Congress rejected these proposed downgradings. I urge that this Committee take the first step towards repeating that Congressional action, by disapproving the proposed cut. It makes no sense financially when its costs and risks are taken into account.

I hope that in addition, the Committee will very carefully review and evaluate the effort now under way at NOAA to determine which weather stations could profitability be sold or contracted out to private companies. The sale of the weather satellite system is a separate issue I will not address here. But the proposal to sell or lease weather services to private companies is of direct concern to everyone, particularly to those of us whose Weather Service Stations have repeatedly been threatened with cutbacks and reductions such as are proposed for Portland. I believe that in this instance, the value of the free market must be measured against the value of government as a nondiscriminatory provider of fundamental services that affect the entire national community.

I cannot see the overall public benefit of selling weather services. But I can see the costs to the communities and the individuals affected. It seems to me that on the face of it, this is a proposition that demands the most careful and close scrutiny of the Committee, when NOAA finally sends down its recommendations.

Government has a responsibility to provide services such as delivering the mail, checking the weather and letting people know about it in advance that the private sector cannot perform at a profit, and which the private sector ought not be allowed to "sell". There is no benefit to be gained by making access to weather information a competitive process, except for the private party selling the information. Set against that private gain, it is our responsibility to consider the potential public loss.

U.S. SENATE,
Washington, D.C., March 10, 1983.

Hon. BOB PACKWOOOD,
Chairman, Committee on Commerce, Science and Transportation, U.S. Senate, Washington, D.C.

DEAR BOB: A heavy schedule makes it impossible for me to appear before you Committe today, as I wished to do, to participate in the hearing on the Administration's proposed budget for Fiscal Year 1984 for the fisheries industry.

Although fiscal stringency is essential in light of the massive deficits projected in this budget, there are some cuts which are clearly counterproductive. One such is the proposal to cut by nearly 60 percent the funding for the Regional Fishery Management Councils which are mandated by the Magnuson Act.

I can attest that the work of the New England Fishery Management Council has been vital to the successful efforts of Maine fishermen to maintain this industry and regain their competitive status against foreign competition. Even if the claim that the Councils have a small role since the bulk of their planning work is completed were accurate, which it is not, this projected funding cut would virtually eliminate the Councils as functioning and useful bodies. That was not the intent of the Congress, in mandating their existence. Nor is it in line with the Administration's stated interest in giving decision-making power to entities outside Washington, D.C.

The Councils were created and have been maintained because they serve a very straightforward and essential purpose. The U.S. fishery industry, as you know, encompasses a geographically widespread and extremely diverse resource base. The needs of fishermen in Oregon are not the same as the needs of fishermen in Maine. Neither are the species that are commercially fished. The Regional Councils are a recognition of this fact, and serve to develop and monitor fishery management plans that make sense for their diverse regions. There is no comparable body of knowledge or experience located in Washington, D.C. which is capable of directing the management of fisheries off the Maine Coast and the Gulf Coast and the West Coast.

Furthermore, one assumption underlying this budget cut is that the planning function of the Councils is finished. That is simply not true. The New England Council must still conclude the final management plan for the mixed-trawl groundfish fishery—the largest in terms of revenue under the Council's management. That fishery represents $126 million in landed value, with a total economic worth to the New England region of $375 million. Its importance and magnitude are clear. That fishery is now operating under an interim plan only.

Additionally, a redeveloped plan for the herring fishery, an important component of the New England fishery resources, is needed to take the place of an unsatisfactory one. It seems obvious that the management of such a resource as fisheries, a living environment whose component parts are beyond human control, will always entail the likelihood of changes and shifts that will necessitate modifications in plans. The fact is that a plan which may work well for a decade now may well need revision in the future, as conservation plans succeed or as environmental factors change the quantity of fish that can safely be harvested. I cannot readily foresee a time when the work of the Councils will be unnecessary or subsidiary to the wisdom of Washington, as long we want to encourage and maintain a thriving fishing industry.

The Regional Councils now operate at the 1982 funding level, with no allowance for inflation. Given the need to hold down spending, I recommend to the Committee that it consider maintaining this frozen funding level for Fiscal Year 1984, as well. Cutting back to the levels proposed by the Administration would "save" $4.3 million. The New England Council helps manage a total fishery resource that amounts to $310 million in direct landed value, and $1 billion in economic activity in the New England region. Saving $4 million at the risk of undermining the future soundness of an industry of such economic magnitude is a false economy of the worst kind.

I hope the Committee will reject the Administration's budget cut.

Sincerely,

GEORGE J. MITCHELL,
U.S. Senator.

STATEMENT OF THE AGRICULTURAL RESEARCH INSTITUTE

The Agricultural Research Institute, a nonprofit corporation dedicated to the furtherance of agricultural research, submits this statement, made from the perspective of the industries and the state and federal organizations it represents. The needs of nearly every segment of the U.S. food and fiber production and natural resources systems has been considered and input from a February 1-3, 1983, ARI-sponsored meeting, where these industries analyzed weather needs, are incorporated.

Weather has more impact on year-to-year changes in food production and energy usage than any other factor. However, weather and climate information will permit strategic planning to minimize the adverse impacts of weather on crop production. Further, agricultural and natural resource industries can respond to weather events if predicted accurately and disseminated rapidly and coherently. There are many responses, but all save invested resources, minimize use of additional resources, and assure cost effective production of food and fiber. An effective agricultural weather system allows for information to replace resources.

ESSENTIAL ELEMENTS OF A CLIMATE AND WEATHER SYSTEM

Weather forecasting must be a federal responsibility. Since the scale of weather systems is beyond local and regional boundaries, it must be national and global in scope. Satellite data, large-scale numerical models, a coordinated national and international observation network, and a U.S.-wide information distribution system are all needed components. The outputs (forecasts) have many users and applications.

At the regional and state level, essential elements of a weather system include: overseeing the collection of meso- and micro-scale climate data; verification of forecasts; research on specific regional weather and climate impacts; education of users about application of weather information; and tailoring of national forecasts to meet local needs.

State and regional climate networks complement the national network and must be coordinated because of the need for uniform quality controlled and achieved data. Weather related research and education programs are best executed at the state of regional level even though they have national consequences. Weather forecasts should be tailored to respond to the specific local information needed by agricultural and natural resource industries. These forecasts should be precise, detailed, and frequent with estimates of the probability of occurrence (i.e., reflect the forecaster's confidence in the forecast).

There is much private interest and investment in tailoring National Weather Service agricultural weather forecasts to farmers' specific crop needs. Agricultural advisories from the state Cooperative Extension Service are added and both, along with specific chemical and other recommendations, are disseminated to clients. This growing private involvement depends upon the public National Weather Service agricultural weather forecast.

AN ECONOMICALLY BENEFICIAL AND VIABLE SYSTEM CAN EVOLVE

Because of the importance of weather to the food production system, we believe farmers are willing to pay, through taxes or allocations, to support the flow of this vital information. However, because there are over two million farmers, any billing scheme to collect funds for the few million dollars marked for the program would be inefficient. Rather, with a more effective mandate to define, organize, and coordinate responsibilities and roles at the federal, state/region, and local levels, we believe a highly cost-effective system could evolve that would require few additional resources.

Clearly, the United States' policy has been to augment food production and to use the agricultural sector through its food production system as a major contributor to the balance of payments. Agriculture's net contribution was $24 billion last year. An effective weather climate system, with adequate federal input, is essential to assure the continuing producitivty of our food and fiber industries.

The attempt currently to divide the focus for these national responsibilities gives no attention to what is needed to improve the system. Defining these needs is a task for a weather service consortium of federal, state/region, and local organizations. The Agricultural Research Institute is working to see that such a consortium evolves. With a clearly mandated weather initiative from Congress and the assurance of continuing funding, our energies can then be devoted to improvements that will make more cost-effective the maintenance of an even better food and fiber production system.

We hope these thoughts will be of value to your committee.

STATEMENT OF THE CALIFORNIA-ARIZONA CITRUS LEAGUE

My name is William Quarles and I am President of the California-Arizona Citrus League (The League).

The League is a voluntary, non-profit trade association composed of marketers of California-Arizona citrus fruits. Members are farmer cooperatives and independent shippers representing over 75% of the 10,000 citrus fruit growers in Arizona and California. These growers produce oranges, lemons, grapefruit, tangerines and limes.

The League appreciates the opportunity to present its views on a matter of industry concern, namely the need to preserve the Fruit Frost Forecast and Advisory Service Program. The Fruit Frost Program, administered by the National Oceanic and Atmospheric Administration provides citrus and fresh vegetable growers in California, Arizona, Florida, and Texas with detailed site-specific minimum temperature forecasts and other advisory services that support implementation of measures for avoiding or lessening frost damage to crops. While "zone forecasts" issued by the nearest National Weather Service forecast office for the areas involved include both maximum and minimum forecasts, such forecasts are not site-specific and thus are of marginal use to farmers now served by the Fruit Frost Program.

The Fruit Frost Program consists of trained agricultural meteorologists who monitor weather conditions which could damage crops. Information is gathered on a very detailed basis—often down to the square mile—and is disseminated to interested persons through television, radio and telephone recorders. For example, the California Fruit Frost Service covers those areas where frost sensitive crops are grown, from the Northern Sacramento Valley down to the Mexican border. Of the $15 billion worth of California agriculture, over $1 billion is frost sensitive. The estimated annual crop-loss savings in California alone approaches $70 million.

The National Weather Service estimates that there are approximately $1.6 billion in weather-related crop losses each year. In addition, weather impacts other areas of agriculture by causing reduced yields associated with plant and animal diseases, insects, pollution and water use. These additional weather-related losses are estimated by the National Weather Service at $9 billion annually. While these losses cannot be avoided entirely, it is possible to reduce agricultural losses significantly through better forecasts and information.

The Fruit Frost Forecast and Advisory Program in California has been in existence for over 60 years, serving many segments of California agriculture extremely well. Indeed, program audits have shown that of all the Weather Service programs (which provide an estimated return of $20–30 in crop and livestock savings for every dollar spent) the Fruit Frost Program has one of the highest cost-benefit ratios. Additionally, the Fruit Frost Program provides much more than minimum temperature forecasts. It provides complete weather advisory forecasts to the agricultural community. It also provides information on spray and dusting weather, winds, high temperatures, humidity, rainfall and rainfall amounts, and orchard dry times.

The information provided by the Fruit Frost Program is also of importance in the various Integrated Pest Management (IPM) Programs which have been implemented in the past several years. An important factor in these IPM Programs is accurate and timely weather data. Without good weather data we cannot accurately predict insect and disease life cycles. Therefore, we cannot effectively time control measures where warranted.

The members of the League were most distressed to learn of the Administration's proposed elimination of this vital program again this year. The League's members are also puzzled as to why this program has been targeted for elimination. Under the continuing resolution, the Program is funded at $418,000 for the current fiscal year. As noted above, the benefits produced by the program far exceed its small cost. Further, it would be very difficult, if not impossible for this program to be operated by the private sector without and interruption in service. It must be remembered that even one year's break in service could prove disastrous to the agricultural community and the consumers of the nation. The successful operation of this program requires skilled personnel to conduct the forecasts together with the technical hardware necessary to develop the required data. Both of these items are not presently available in the private sector.

The League strongly urges that the Committee correct the shortsightedness of the Commerce Department in proposing to eliminate the Fruit Frost Program. We suggest that the Program be reauthorized for a three to five year period, at current funding levels with appropriate increases for inflation and employee benefits.

STATEMENT OF THE CALIFORNIA RAISIN ADVISORY BOARD

The California Raisin Advisory Board (the Board), under the auspices of the California Department of Food and Agriculture oversees the state marketing order for raisins. The Board represents over 4500 producers and processors of raisins who account for 100% of the U.S. and 30% of the world production.

The Board takes an active interest in matters of vital concern to the raisin industry including generic advertising, promotion and funding for research and producer information programs. We appreciate this opportunity to present a statement for the record strongly supporting the continuation of the Fruit Frost Forecast and Advisory Service.

For over 60 years, the Fruit Frost Program has provided the multibillion dollar fruit and vegetable industries in California, Arizona, Texas and Florida with accurate, site-specific minimum temperature forecasts and other advisory services. Armed with these detailed forecasts in advance of a frost, growers are better able to take the steps necessary for avoiding frost damage to crops. The "zone weather forecast" provided by the National Weather Service cannot take the place of The Fruit Frost Service as zone forecasts are not site-specific, and thus are of minimal use to the growers. It should also be pointed out that to the above states covered by the Fruit Frost program, commercial agriculture in every state uses and depends on timely and accurate weather information.

The Fruit Frost Service consists of highly trained agricultural meteorologists who closely monitor weather patterns which could be potentially devastating to frost sensitive crops. Information is gathered on a daily basis from numerous sites and carefully analyzed by meteorologists who then make site-specific forecasts for the various locations within their region. These forecasts are made available to the public through television, radio and telephone recorders.

The Fruit Frost Service is extremely important to the California raisin industry as more than 80 percent of the U.S. production is in a 500 square mile area in Fresno County, with the remaining 20 percent scattered throughout the state. With such a large percentage of the national crop concentrated within a small region subject to particular weather changes, the California raisin industry depends heavily upon the Fruit Frost Service for accurate and timely site-specific forecasts. it is estimated that in the San Joaquin Valley alone, the Fruit Frost Forecast and Advisory

Service saves the industry roughly 10 percent of the crop value through more efficient use of irrigation, reduced and better time sprays and nutrients, and accurate forecasts provided during the harvesting and drying period.

The California Fruit Frost Forecast and Advisory Service covers those areas where frost sensitive crops are grown, from the Northern Sacramento Valley to the Mexican border. It is estimated that over $1 billion of the $15 billion California agricultural output is frost sensitive. Further, the estimated annual crop-loss savings in California alone approaches $70 million.

The California Raisin Advisory Board is deeply concerned with the Department of Commerce's decision to eliminate the Fruit Frost Forecast and Advisory Service. This $418,000 program returns millions of dollars in lost crop savings to the producer and consumer each year. In fact, program audits indicate that the Fruit Frost Service has the highest cost-benefit ratio of any division within the National Weather Service. Further, it would be extremely difficult, if not impossible for the private sector to take over this program without an interruption in service, and provide the same high quality service in a accurate and cost effective manner. Additionally, any move to the private sector would undoubtedly result in a disruption of service. If an interruption in service occurs, the losses to both producers and consumers could quickly run into millions of dollars.

The California Raisin Advisory Board strongly urges this Committee to re-evaluate the Commerce Department's decision to end this valuable program. We implore this Committee to recommend continued funding of the Fruit Frost Program. To this end, we recommend that the program be reauthorized for a minimum of three years at current funding levels with appropriate increases for inflation and employee benefits.

STATEMENT OF PATRICK L. CARROLL, CHAIRMAN, NEW ENGLAND FISHERY MANAGEMENT COUNCIL

Mr. Chairman, Members of the Committee: I would like to present to you, for the record, a few additional comments to supplement the testimony being given to your Committee today on behalf of the five east coast Councils.

Each year, the Councils prepare budget requests for inclusion in the budget submission of the National Marine Fisheries Service (NMFS) and the National Oceanic and Atmospheric Administration (NOAA). In the Administration's budget for both fiscal year 1983 and fiscal year 1984, very substantial cuts have been proposed for NMFS and for the Councils. In neither year has any Council been consulted or advised in advance regarding the extent of Council funding cuts to be proposed. The Councils have requested such prior involvement without result.

There are several possible explanations of this recurring pattern of NMFS setting very low levels of proposed funding for the Councils without any Council input or opportunity to defend reasonable levels in the budget request. We strongly urge the Committee to ascertain the rationale for such NMFS behavior and to consider possible remedies for what we believe is intolerable and unwarranted behavior. Despite the fact that NMFS and the Councils both have significant roles in the implementation of the Magnuson Act; and notwithstanding that much of the time the interactions are harmonious and productive, NMFS quite often treats the Councils as though they were nothing more than another program or branch of the Service, to be dictated to and funded through NMFS. The Councils were ot set up to be a part of the bureaucracy, despite persistent NMFS efforts to treat them as such. We are not a part of NMFS, and we frankly resent being treated as such. Fully aware of the possible implications, I would suggest that the Congress seriously consider alternative methods of funding the Councils.

Our Council has earlier informed the relevant House Sub-Committee that adoption of the Administration proposal of a 57 percent reduction in Council funding would, quite simply, destroy the Council system established by the Congress in 1976. NMFS has argued, both last year and this, that most necessary fishery management plans have been completed and that all that remains is to monitor those plans. To my knowledge, no Council was asked whether it agreed with that assertion, and I am certain that no Council does. In our own case NMFS has indicated, in response to a House Sub-Committee question, that except for a "projected" FMP for American Lobster (which is actually completed and ready for submission in the next few weeks) the New England Council has no further work to do in management planning. In fact, the major U.S. Atlantic coast fishery—the mixed-trawl, groundfish fishery—is currently being managed under an interim plan; and major tasks remain before completion of a successor plan. We also expect to prepare another herring plan to replace an unsatisfatory one that was formerly in place but that has been rescinded.

Although the Act does not explicitly address the matter, we also believe that a major responsibility of each Council is to establish fishery policies that are consistent with its regional needs and circumstances. The national standards and other provisions of the Act allow great latitude in the management of various fisheries; and the process of appointments of state nominees, membership of principal state fishery officials and industry advice and participation has given fishery management in each region a unique flavor and character. We believe this is highly desirable, that it is consistent with Administration policy, and that it would not be possible without adequately funded and effectively functioning Councils. Additionally, we do not believe that monitoring plans already completed is either a simple task or the only one remaining. Conditions and circumstances change, and amendments will certainly be necessary and possibly even complete revision or replacement of some plans. We expect that such ongoing Council activities will also require substantial levels of funding.

Mr. Chairman, I would note that the 1981 landed value of species under the purview of the New England Council was about $310 million, and the total economic benefits generated were over a billion dollars. Similar though varying benefits accrue to the regions served by our sister Councils. We believe it would be most unfortunate to jeopardize the monitoring and management of such bountiful fisheries by inadequate funding or by shifting those responsibilities out of the hands of regional representatives. I do not wish to reiterate our joint testimony, but I would say that the $7.5 million expenditure for the Councils' operations in fiscal year 1982 and in fiscal year 1983 is money well spent when the results of the Councils' activities are viewed objectively. We do not believe the federal government could achieve the same results with that level of expenditures by usual governmental bureaucratic mechanisms.

We would add in closing, Mr. Chairman, that the abrupt termination of P.L. 88-309 grants for commercial fisheries research and development and P.L. 89-304 grants for conservation and enhancement of anadromous fishery resources, as proposed in the Administration budget, would have very serious and deleterious effects. Even if eventual termination of those programs is considered necessary, a multiyear phaseout should be designed to allow for necessary alternate funding arrangements to be worked out by the affected states. To simply kill the programs now would result in irremediable losses. These programs, particularly 88-309, complement many activities of the Councils; and we believe that their termination would be most unfortunate.

Thank you for your courtesy in receiving these comments.

STATEMENT OF DEFENDERS OF WILDLIFE

Defenders of Wildlife ("Defenders")[1] is pleased to submit the following statement regarding reauthorization of title III of the Marine Protection, Research and Sanctuaries Act of 1972.

I. INTRODUCTION

The product of Title III—the National Marine Sanctuary Program—is now entering its second decade of existence. At this time of reauthorization, an assessment of the Program—its objectives, its procedures, its problems, and its future—is most certainly appropriate.

In 1972, title III was the final result of eleven separate bills introduced into the House of Representatives during 1968.[2] Fourteen years ago, these documents expressed a growing concern over increasing evidence of degradation of offshore and coastal environments. The House report accompanying its bill expressed the need to address these problems:

"Title III deals with an issue which has been of great concern to the Committee for many years: the need to create a mechanism for protecting certain important areas of the coastal zone from intrusive activities by man. This need may stem from the desire to protect scenic resources, natural resources or living organisms; but it is not met by any legislation now on the books. * * * The pressures for development of marine resources are already great and increasing. It is never easy to resist these pressures and yet all recognize that there are times when we may risk sacrificing long-term values for short-term gains. The marine sanctuaries authorized by this bill would provide a means whereby important areas may be set aside for protection and may thus be insulated from the various types of 'development' which can destroy them." [3]

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[1] Defenders of Wildlife is a national, nonprofit, tax-exempt organization with a membership of over 58,000 citizens nationwide, and is dedicated to the protection of the Nation's wildlife resources and the natural environment.

[2] Center for Natural Areas, "An Assessment of the Need for a National Marine Sancturaries Program, Phase I of: Study of the Framework of the Marine Sanctuaries Program," Contract No. CNA/OCZM 7-35118, Apr. 11, 1977, p. 32.

But Title III then and now represents much more than an effort to prevent environmental degradation of ocean and coastal areas. From its inception, the statute was also intended to provide for the maximizing of human benefits and uses in sanctuary areas. This intention was emphasized in the legislative history:

"I must admit that the word sanctuaries carries a misleading connotation. It implies a restriction and permanency not provided in the title itself. Title III simply provides for an orderly review of the activities on our Continental Shelf. * * * It provides for multiple use of the designated areas. It provides a balanced even-handed means of prohibiting the resolution of one problem at the expense of the other. It guards against 'ecology for the sake of ecology.' It also guards against the cynical philosophy that the need for oil is so compelling that it justifies the destruction of our environment." [4]

"Let me reemphasize the fact that marine sanctuaries as proposed in Title III of this legislation are not intended to prevent legitimate uses of the sea. They are intended to protect unique areas of the ocean bordering our country. * * * A sanctuary is not meant to be a marine wilderness where man will not enter. Its designation will insure very simply a balance between uses." [5]

So it is that a major increment of the Program then and now is also the comprehensive management, aided by research and educational programs, of sancturary areas. Scientific research and public interpretive programs are obviously vital to ensuring the continued integrity of sanctuaries' resources, particularly as ever-increasing recreational and commercial uses are imposed upon these areas.

II. PROGRAM BENEFITS

By the end of this decade, it is estimated that 75% of the nation's population will be residing within the coastal zone (up to 50 miles inland).[6] Millions of person in addition will annually visit our seashores' warm beaches or rocky shorelines, to enjoy swimming, boating, diving, fishing, or simply "breathing the salt air." By that same time, diversified pressures on coastal waters will also be greatly increased, including offshore energy development, commercial fisheries development, and shipping traffic attendant to these and other activities. These commercial and recreational activities and their potential effects on the marine environment speak to an element of the Program which has not as yet received the attention it deserves.

It is perhaps this element which makes Title III unique among a myraid of other environmental legislation. The Program is designed to comprehensively manage and preserve for future generations distinctive ocean econsystems. In doing so, the Program fills existing "holes" in the protective coverage offered by other laws. Achieving these objectives does not mean closing off special areas to all commercial and recreational uses. Rather, the Program identifies anticipated detrimental activities in such areas; recognizes the changing needs of such areas; and remains sensitive to local states' interests in such areas. The result is a Program whose purpose is both the comprehensive protection of distinct ecosystems, and the active encouragement of their wise use and enjoyment.

The value of this all-encompassing consideration of marine environmental protection has been recognized in a number of studies. For instance, the Center for Natural Areas found that:

"Title III * * * became the first, to date the only broadbased, comprehensive federal legislation capable of striking a balance between the need to develop and utilize and the need to protect and conserve the nation's marine resources." [7]

These findings were later echoed in two additional analyses of the Program:

"The marine sanctuaries provision is an environmental protection law that has offers [sic] a positive approach to protection of marine areas of recognized importance. It is a multiple-use provision that was designed to protect a site, rather than stop certain activities or eliminate adverse impacts."

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[3] H.R. Rep. No. 92-3671, 92d Cong., 1st sess., p. 15 (1971).

[4] Congressman Keith Hastings, R-Mass. Cong. Rec. H-8190-1, Sept. 8, 1971.

[5] Congressman Thomas Pelly, R-Wash. Cong. Rec., H-8232, Sept. 8, 1971.

[6] Natural Resources Defense Council, "Paving the Way for Coastal Development: Resource Management and Waste of Tax Dollars," October 1980, p. 9.

[7] Center for Natural Areas, p. 37

"Without the sanctuary provision, sites could only be protected indirectly (and probably less completely) through a maze of federal programs * * * the long-term protection or restoration of marine sites for conservation, recreational, ecological or esthetic values without the direct approach of a sanctuary program is likely to be * * * difficult." [8]

And:

"Title III authorizes the only Federal program to comprehensively manage and protect marine areas as units,* * *"

"* * * if comprehensive protection of the marine environment is desired in selected areas; that is, if certain areas merit special treatment, whether due to unique characteristics or recreational value or some other pertinent factor, Title III would seem to be an appropriate way to provide it to accomplish the basic objectives the Congress envisioned in establishing an effective marine sanctuaries program." [9]

This country's past efforts to protect the marine environment have resulted in a series of regulatory authorities which are primarily single-purpose in nature. Among these are:

The Fishery Conservation and Management Act of 1976, which is designed to conserve and manage commercial and sport fishery resources. Regional fishery management councils are established to accomplish these objectives through regulations. The Act does not, however, extend to non-commercial resources.

The Outer Continental Shelf Lands Act Amendments of 1978 limit environmentally protective measures to oil and gas-related activities at individual sites. It does not cover oil and gas-related spills resulting from tanker collisions, for instance.

The Federal Water Pollution Control Act Amendments of 1972 regulate the discharge of pollutants (including oil and other hazardous substances) into state waters, the "contiguous" zone (from state waters, or 3 miles, outward to 12 miles from the U.S. coastline), and the ocean beyond. However, the Act applies only to discharges into navigable waters that can additionally be proven an imminent and significant danger to public health and welfare. It does not consider the health and welfare of specific marine ecosystems.

The Port and Tanker Safety Act of 1978 mandates the Coast Guard to reduce tanker and tank barge pollution through improved design and contruction standards.

The Deepwater Port Act of 1974 provides for protection of marine and coastal environments only to the extent of preventing or minimizing possible adverse impacts of deepwater port development activities.

Sometimes—especially when viewed from the perspective of achieving a particular or singular objective—the purposes of these laws come into apparent conflict. This perceived conflict has sometimes been a stumbling block to the smooth and timely implementation of the Program's objectiv. Defenders of Wildlife steadfastly believes that conflicts in these areas need not exist. With proper management, all reasonable uses of the ocean can be accommodated without sacrificing the integrity of areas critically important to marine species and to human livelihoods and enjoyment. With responsible leadership, the various statutes affecting control of marine activities can be implemented in a complementary fashion, without overlap or conflict.

III. PROGRAM IMPLEMENTATION: EARLY PROGRESS AND RECENT MODIFICATIONS

Although the Program was established in late 1972, no marine sanctuaries were designated until 1975. During that year, two areas were set aside: a one-square-nautical mile area surrounding the Monitor, a Civil War ironclad warship sunk in 1862 off the the coast of Cape Hatteras, North Carolina; and a 20-mile-long section of coral reef off the southern Florida coast. In both cases, the sancturaries were rather limited in scope due primarily to the nature of the resources being preserved.

The Program received little or no attention until 1977, when the Carter Administration committed itself to a more vigourous pursuit of marine sancturay designations. In response to a call for nominations from states and the public of possible candidates for marine sanctuary status, the Program received over 100 suggestions. These became the Program's "List of Recommended Areas," or "LRA". Although the Program's attempts to solicit suggested sites were well-intentioned, and although many of the suggestions were in fact well-qualified for further consideration, it is true that specific guidelines or criteria were not well-formulated at that point. The result was an LRA consisting of some totally unacceptable recommendations for marine sanctuary designation.

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[8] Congressional Research Service, "The Contribution of Marine Sanctuaries Provision to Environmental Management," Feb. 14, 1980, pp. 12-13.

[9] General Accounting Office, "Marine Sanctuaries Program Offers Environmental Protection and Benefits Other Laws Do Not," CED-81-37, Mar. 4, 1981, pp. 12, 22-23.

Among the sites deemed worthy of further consideration was a biologically unique coral system, known as the Flower Garden Banks, located off the coasts of Louisiana and Texas, in the Gulf of Mexico. The nomination was originally offered in 1973 by Texas State Senator A.R. ("Babe") Schwartz, and later Re-submitted in 1977 in conjunction with the Texas Coastal and Marine Council. The site was elevated to "Active Candidate" status in 1978. The Flower Garden Banks coral reefs, incorporating over 350 known species, are well-known and admired by sport divers, but little understood scientifically. They are the only well-developed, tropical coral reefs in the northwest Gulf of Mexico. They are also among the last relatively pristine reefs remaining in U.S. Waters, due to their distance from shore (approximately 110 nautical miles south-southeast of Galveston).

Almost from its inception, however, progress on the proposal was stymied by intense objection from oil and gas development interests. Although numerous concessions were made to accommodate these interests, including allowing hydrocarbor operations in the area, regulatory conflicts emerged which effectively stopped further progress on sanctuary designation. The site was removed from Active Candidate status in 1982.

The effect of conflicts surrounding the Flower Gardens proposal unfortunately, clouded the future of other proposed designations during 1980. Two Program proposals during the year involved areas off the California coast which were also of interest to the offshore oil and gas industry: the Channel Islansd ecosystem, off the coast of Santa Barbara, and the Point Reyes/Farallon Islands ecosystem, off of San Francisco.

Both of these areas are of tremendous importance to a variety of marine species, including migratory great whales, seals, sea otters, and hundreds of nesting sea bird species. The waters are biologically rich, providing shelter and food to the many fish species which in turn sustain bird and marine mammal populations, as well as supporting a healthy commercial fishing industry. At the end of lengthy public participation processes, both final proposals included prohibitions on future oil and gas development activities within sanctuary boundaries. At this point, the future of the Program itself became seriously threatened not only by the oil and gas industry, which claimed huge portions of the OCS would be "locked up" by sanctuary designations, but also by the Department of the Interior (DOI), which claimed exclusive jurisdiction and regulation over all Federal activities occurring on the Outer Continental Shelf.

Due primarily to massive public, state, and Congressional support, the two California sanctuaries were finally designated by former President Carter with the prohibitions on oil and gas development operations intact. Presidential designation, however, did not resolve the arguments of the oil and gas industry that large portions of the OCS would be closed off to development by future sanctuary designations. Nor was the Department of the Interior especially mollified by the final designation action.

Defenders as well as the Program's staff firmly maintain that, because of its multiple-use, ecosystem approach to management, the Marine Sanctuary Program is not duplicative or unduly restrictive in nature. The General Accounting Office has also agreed:

> "* * * the marine sancturaries program, * * * is providing, or has the potential to provide, marine environmental protection over and above that which is or can be provided under other Federal statutory authorities." [10]

Further, the OCS is not about to be closed off to all, or even significant, development. Reasoned and timely development of the OCS's hydrocarbon resources needs to occur. The potential for oil and gas reserves in a given area is among the possible uses examined by the Program during its consideration of that area for sanctuary designation.[11]

Two additional National Marine Sanctuaries were designated during 1980: a five-square-nautical mile section of the spectacular coral reef system at Looe Key, Florida; and a 16.68-square-nautical mile area around the "hard bottom" reef system at Gray's reef, Georgia. Both areas will be the subject of research and monitoring efforts, which will answer many questions about the complexities of reef systems and the habitats they provide for other marine organisms. The public will continue to enjoy these areas for their extensive recreational opportunities.

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[10] *Ibid.*, p. i.

[11] General Accounting Office, "Impact of Regulations—After Federal Leasing—On Outer Continental Shelf Oil and Gas Development," EMD-81-48, Feb. 27, 1981, p. 32.

It is important to note that all of these proposals evolved from the desires of state governments, who understand the benefits to the state and to local communities of National Marine Sanctuary designation. The day-to-day management of a sanctuary is a cooperative, on-site venture, usually planned through the state department of natural resources.

The concepts embodied by the National Marine Sanctuary Program are worthwhile, and they are needed, as the diversity and pace of off-shore and coastal development increases. Recognizing that the Program would be significantly strengthened by the establishment of a clearly stated mission and specific criteria for sanctuary designation, Program personnel have devoted much of the last two years to developing and implementing the "Program Development Plan," (PDP).

The PDP provides the policy and administrative framework for the Program, and thus attempts to eliminate any existing confusion concerning where the Program is headed, how it intends to get there, and what the final "product" is anticipated to be. The stated mission is straightforward: "the establishment of a system of national marine sanctuaries based on the indentification, designation, and comprehensive management of special marine areas for the long-term benefit and enjoyment of the public." [12] An entirely new nomination/designation process has been initiated, coupled with specific site identification and evaluation criteria. Increased emphasis is given to site-specific management plans, and to interagency coordination, research, public awareness and interpretive programs. To implement this process, a number of steps have been taken:

(1) The "List of Recommended Area" (LRA) has been eliminated. Because there were no definite criteria with which citizens or organizations were familiar, many nominated areas on the LRA were unacceptable as sanctuary candidates. The LRA had also caused substantial confusion regarding the status of areas nominated and the likelihood of eventual designation.

(2) Eight regional resource evaluation teams, consisting of persons in the private sector with some particular expertise in marine resources or systems, were established to assist in the initial identification and evaluation of possible sanctuary sites in eight geographic regions. Following preliminary selection of several priority sites, the terms' recommendations were submitted for public comment; any additional nominations were also solicited from the public. Incorporating public comments and suggestions, each team submitted any changes or additions to the public for further comment. Following a second team review of comments received, final lists of recommended areas for further consideration were submitted to the National Oceanic and Atmospheric Administration (NOAA).

(3) NOAA will review the teams' recommendations, eliminate any that may be deemed inconsistent with the Program's objectives, and submit a draft "Site Evaluation List" (SEL) to the public for further comment. A final SEL, consisting of approximately 35 nominated sites, is anticipated by early 1983. The final SEL will form a pool of highly-qualified nominations, from which NOAA will systematically select sites to become "Active Candidates," and be evaluated in further detail as potential marine sanctuaries.

(4) Site-specific management plans will now be developed along with the site designation proposal, so that public input on the real effects of sanctuary designation may occur earlier and in more detail.

The Sanctuary Program Office is presently nearing completion of its draft SEL. It is perhaps not surprising that an entirely new process imposed upon a program already underway, has caused some stumbling blocks along the way. Of the eight regional resource evaluation teams, real problems have emerged on two: the North Atlantic team and the Alaska team. The problems have generally been those of poor or inadequate communication and involvement, and misinformation or misunderstanding of the Program's (and the teams') intentions. In Alaska, the extent of these problems was sufficiently serious to prompt NOAA to shut down the process in that region until complete understanding and agreement is reached regarding possible future sanctuaries in Alaska. While these occurrences are certainly unfortunate, Defenders does not believe the integrity of the Program has been undermined by these mistakes. The objectives are sound; the implementation simply must be better in some instances.

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[12] U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Coastal Zone Management, "National Marine Sanctuary Program, Program Development Plan," Jan. 1982, p. 11.

Of the approximately 75 sites which Defenders has reviewed, many must be truly wonderous places indeed. Resources span the full range of one's imagination: tropical coral reef systems to bay/ocean systems fostering shellfish, crustaceans, finfish, sea turtles, and rare shore-birds to whale and dolphin feeding areas to lagoonal/mangrove systems to Great Lake waterfowl/inland fisheries systems. The work to be accomplished by NOAA is an awesome task.

IV. THE FUTURE

Neither local communities nor the oil and gas industry should be fearful or suspicious of the "new" National Marine Sanctuary Program. The procedural refinements now being implemented will guarantee early and continued public involvement in the process; and the clearly-defined guidelines and program parameters will also guarantee more than reasonable access to the OCS.

Defenders is enthusiastically supportive of the Program and the promise it holds for all of us: a comprehensively managed system of National Marine Sanctuaries, each of which is a unique or particularly reprsentative marine econsystem worthy of preserving for the future use and enjoyment by the public. The procedural problems encountered are small indeed in comparison to the magnitude of the challenge. It is past time to get on with the business of meeting that challenge, and to that end, Defenders urges that Title III be reauthorized for a minimum of three years. Regarding funding for the Program, Defenders asks the Committee to bear in mind the following: research and interpretive programs are integral to good management. These simply can not be realized without at least a small increase in funding. This organization therefore proposes funding of $3 million in fiscal year 1984; $3.5 million in fiscal year 1985; and $4 million in fiscal year 1986.

STATEMENT OF DR. JAMES A. TIMMERMAN, JR., EXECUTIVE DIRECTOR, SOUTH CAROLINA WILDLIFE AND MARINE RESOURCES DEPARTMENT

As Executive Director of the South Caroline Wildlife and Marine Resources Department, I would like to provide testimony in support of continued funding for the National Sea College Program in the fiscal 1984 budget. The Sea Grant Program has served as a viable federal/state cooperative effort in South Carolina which has enhanced the development and management of fishery resources.

In addition, as President of the International Association of Fish and Wildlife Agencies (IAFWA), I would like to note that our organization is urging continuance of the Sea Grant Program which has been highly significant and supportive of developing fishery resources. Sea Grant provides a most constructive point of contact with the academic community and serves to focus academic expertise on issues, problems and needs of our ocean resources and those who use these resources. The IAFWA has also emphasized extension education programs for wildlife and fishery resources users of which the Sea Grant advisory services and education programs have served an important cooperative role in educating and developing citizens' knowledge in fishery utilization and management.

In general, the National Sea Grant College Program has become a model for university/private sector/government partnership on critical resource development opportunities and problems. Like agricultural land, productive use of our coastal and marine resources is a national concern; these assets should be used effectively. I feel that our country needs to provide stable and adequate support for the necessary, long-term, and, often, high-risk research that provides scientific and industrial development as well as optimum management of its valuable resources. Although the Sea Grant Program has developed unique capabilities in a number of important areas, I am, of course, most familiar with their activities in support of fishery and aquaculture development and management.

A significant event of the past 100 years was the development of sophisticated agricultural capabilities in this country. It is necessary that we develop similar sophistication in water-based food production. The United States imports over half of the seafood which it consumes despite the fact that this country has access to some of the world's largest and most productive coastal and marine waters. If developed wisely, these vast areas may offer economic opportunities equal to or greater than the agricultural sector of the nation's economy.

From the beginning, the Sea Grant Program has focused much of its energies on fisheries in an effort to maximize our protein supply in the face of increased harvesting pressures from both domestic and foreign fleets as well as declining water quality. As basic research data accumulated, a refined understanding of fisheries science and management techniques has developed. Applied aquaculture is becoming a reality, supplementing intensively harvested fisheries and providing new industries. Indeed, readily available data on just sixteen Sea Grant projects indicated that the program's assistance in increasing the productivity of our fisheries (including harvesting, processing and aquaculture) results in annual economic effects of some $36-million for this particular segment of the ocean sector of the national economy.

While the primary responsibliity for the research, education, and advisory service activities of Sea Grant is undertaken by 29 institutions and consortia, over 250 institutions of post secondary education in 39 states, the District of Columbia, Puerto Rico and Guam have participated in the program during the past five years.

In South Carolina, the Sea Grant Program is a consortium of the major research institutions of the State; the Sea Grant office is itself an independent state agency. Through the Consortium, six universities and the South Carolina Wildlife and Marine Resources Department work together as a partnership to strengthen state and national marine resource development options through emphasis on developmental research needs coupled with effective delivery of that information to fishery resources users. Program priorities have been determined, basically, through discussions with government officials and input from private sector commercial and industrial leaders. As a function of being a Consoritium, the Sea Grant Program in South Carolina supports large scale inter-institutional and interdisciplinary projects as well as individual efforts. One such comprehensive project is characterizing the ecology of coastal wetland impoundments as compared to natural wetland systems (an area of special importance to South Carolina as well as other states with similar systems, like Maryland).

The Sea Grant Program has, of course, supported a number of studies necessary for the proper development and management of South Carolina's commercial and recreational fisheries—the information generated has been important to our agency, the State of South Carolina and the South Atlantic Fishery Management Council. For instance, technical assistance by the Sea Grant Program has enabled several shrimping vessels to convert to finfish in the winter. Through 1983, total revenue gains should reach over $3-million with a Sea Grant investment of $15,000 over three years. Over the past four years, Sea Grant has worked with our agency and researchers at our state's land-grant Clemson University on the development of an automatic shrimp deheader. This machine will significantly reduce costs incurred by processors and large vessel operators while improving overall shrimp quality, thus resulting in substantial economic benefits.

The Sea Grant Program has also supported and developed statewide aquaculture capabilities, including species like prawns, hard clams, crawfish, and striped bass. We have in South Carolina, a cooperative research and development effort on a commercial-scale hard clam mariculture facility. Our agency and the Sea Grant Program have joined with the private sector to develop this new information and technology. South Carolina now has a new industry. The South Carolina Sea Grant Program has also "borrowed" Louisiana Sea Grant Program expertise to provide technical assistance to our fledgling crawfish industry. Crawfish production has now doubled every year for the past three years. The State of South Carolina is particularly interested in aquaculture development as an industry through our commitment of $3.9-million to construct a Mariculture Research and Development Center which is now underway.

The Sea Grant Program is more than just fisheries and aquaculture—development of these resources does not occur in a vacuum. It is also more than a collection of individual programs—information developed by other programs has been helpful to us in South Carolina. The national Sea Grant network makes information accessible beyond political boundries and cuts the lag time between scientific finds and translation into a form that the private sector and government can put to use. Support of the National Sea Grant College Program contributes to the vitality of an important sector of the national economy.

The Sea Grant Program is an important component of fishery development and information technology transfer to users in South Carolina, and is serving to enhance economic development and industry creation in the state. Also, support of the National Sea Grant College Program contributes to the vitality of an important sector of the national economy.

As such, based upon the importance of the Sea Grant Program to our state and the numerous others participating, I would strongly urge the Congress to restore funding for the National Sea Grant College Program in Fiscal Year 1984 at the appropriate level to allow continuance of this federal/state private sector cooperative effort.

STATEMENT OF THE WESTERN PACIFIC FISHERY MANAGEMENT COUNCIL

Mr. Chairman and Members of the Committee: The Western Pacific Fishery Management Council is grateful to Jim Branson, Executive Director of the North Pacific Council, for testifying in our behalf before your Committee. This document is a supplement to Jim Branson's testimony and is devoted primarily to the fisheries of the Western Pacific Region. Presently, our jurisdiction includes the State of Hawaii, the Territories of American Samoa and Guam, the Commonwealth of the Northern Marianas and the U.S. possessions in the Pacific.

Jim Branson pointed out that the three Regional Fishery Management Councils in the Pacific are responsible for the maangement of 84 percent of the U.S. Fisheries Conservation Zone encompassing over 2.7 million square miles. The Western Pacific Fishery Management Council alone has responsibility for managing nearly a half (47 percent) of the U.S. Fishery Conservation Zone. The old saying: "Oh Lord, the sea is so large and my boat is so small" is quite apropos for us, because the U.S. islands in the Pacific are but mere specks when compared to the vastness of the U.S. Fishery Conservation Zone that surrounds all U.S. flag islands in the Pacific.

All of the land masses of the Hawaiian Archipelago, the Northern Mariana chain of islands, Guam, American Samoa, Howland, and Baker Islands, Wake Island, Palmyra Island and Kingman Reef, Jarvis Island, and Johnston Atoll combined total approximately 7,000 square miles. This land area is less than one half of one percent of the total area of the U.S. Fishery Conservation Zone that surrounds the U.S. islands in the Pacific.

The size of the Fishery Conservation Zone in the Western Pacific is an indication of the fisheries potential that lies therein. The fisheries in the Fishery Conservation Zone have the potential to yield between 50-100 million dollars annually. Rather than going into the details of the potential annual values on a fishery-by-fishery basis, we have appended an economic profile which outlines the potential annual benefits from each fishery in the region. On a per capita basis, the potential value of the region's Fishery Conservation Zone fisheries becomes quite significant.

The Western Pacific Fishery Management Council has served effectively as the vehicle for integrating fisheries management in this immense area on a region-wide rather than a localized basis in a way that has never existed in the past. It has united the Pacific island areas and has made possible interactions in the fisheries economies of different island areas. For example, Guam is now air freighting shipments of locally-caught mahimahi, wahoo, and bottomfish to Honolulu for sale in the fresh fish market. Deep water snappers taken by fishermen of American Samoa are likewise finding markets in Hawaii's restaurant and tourist trade. Fishermen of the Northern Mariana Islands are improving the local balance of trade by supplying fish to local restaurants which cater to Japanese tourists.

Tuna purse seine vessels from the mainland West Coast, from Japan, and from many other foreign nations have recently discovered the fisheries potential in and near our region and are rapidly shifting a large potion of their harvesting capacity and transshipping functions into our areas. American albacore trollers are making significant inroads in the central Pacific north of Hawaii. Hawaii-caught tunas are routinely being shipped to the U.S. mainland and foreign markets as high-priced specialty items in Japanese restaurants and sushi bars. All of this and more is happening quite rapidly, and the Council has contributed in a major way to bringing it about. The Council has been and continues to be the principal organization through which diverse interests of the Federal government, the individual island governments, the private sector, and foreign fishing interests interact for fisheries development and management purposes.

We have completed a number of fishery management plans and several more are nearing completion. Our plan for managing the spiny lobster fisheries has just been implemented and our management plan for precious corals is just about to be implemented. We are working with the National Marine Fisheries Service and foreign fishing interests to find a common ground for managing pelagic species in the Fishery Conservation Zone of our Region. We are talking with fishing interests from Japan and Korea and with the National Marine Fisheries Service on foreign fishing observer requirements and data collection for the long-term management of highly migratory species. We have worked and will continue to work with everyone who wishes to participate, wherever they may live or whatever interests that they may have, in trying to achieve the Regional and National good in fishery matters. We have completed a thorough assessment of the bottomfish fisheries of the Region, and we are now drawing up a management plan for bottomfish species. Our Council is intimately involved in developing a centralized system for collecting and analyzing essential fisheries management information. Our Executive Director serves as the

Chairman of the Western Pacific Data Goals Committee, which is making significant progress in this very important task.

We are a long way from finishing our work. We are beginning to assess the Regional fisheries potential for shrimp, coastal pelagic species, and squid, and we are improving the efficiency for systems for monitoring the rapid growing fisheries for pelagic species and other important fisheries in the Region. The growth in the pelagic fisheries in the Region has been very significant and we anticipate continued expansion in the future. There are presently about 30 American purse seiners operating in the central and western Pacific. There are about an equal number of Japanese purse seiners operating in the area, and many other countries are increaing their purse seining capacity in the Pacific. The domestic fleet which longlines for large tunas and billfish in Hawaiian waters increased from 17 boats to between 30 and 40 vessels which operate regularly. The recreational and commercial fisheries in our areas have grown significantly in recent years in a way that has never been experienced in the past. We believe that the Council's role will become much more important in the future as domestic fisheries continue to expand.

The Council is promoting increased domestic harvesting of under-utilized species in our region as mandated by national fisheries policies. Domestic fisheries in the western Pacific are still developing and, in many cases, are in a period of transition to a substantially greater exploitation of the fisheries resources. The work of our Council in such a situation will shift from monitoring the growth of these fisheries to the preparation of fishery management plans for heavily-exploited species. In our Region, the development and management of fisheries need to be accomplished in conjunction with one another. Once certain levels of fish production are realized, we have shifted our emphasis to resource management.

The Council endeavors to integrate our fisheries management responsibilities and fishery development programs so that our efforts compliment industry development activities. Many of the members of our Council serve on State and Territorial fisheries councils or committees. Although the administrative policy of the National Marine Fisheries Service in the past has prevented our Council from undertaking specific fisheries development activities, we nevertheless have integrated our fisheries management program with fishery development activities. The Federal bureaucratic barriers which separate development and management functions should not apply to the Western Pacific Region.

The Council provides an established institutional framework, representing a cross-section of governmental and private sector fisheries interest on matters of fisheries management and development. Although Pacific island fisheries are of smaller scale than those in the continental U.S., this in no way should suggest that the fisheries in our area are easier to deal with. Those familiar with island ways know how much can be accomplished when islanders work together. To accomplish regional fisheries objectives, individual island government and regional organizations with fisheries interests are now pooling their resources. We are highly encouraged that the Pacific Tuna Development Foundation (PTDF) and the Pacific Basin Development Council, an organization which has broader economic development responsibilities than PTDF, are making a consorted effort with our Council on fishery matters in the central and western Pacific. The projected potential benefits from fisheries in the central and eastern Pacific can be faster realized through such a cooperative effort.

We envision a larger role for the Council in Pacific-wide fisheries issues which require collaboration with non-U.S. Pacific island nations. The future. At present, the U.S. government is not represented on any internationally structured forum for managing the highly migratory species in central and western Pacific, although this complex of highly migratory species represents the greatest potential for fisheries development in the region. The potential role of the Council in managing highly migratory species on a regional basis takes on great importance considering that the area of ocean space under the jurisdicition of our Council encompassess over a million and a half square miles.

The Administration's proposed across-the-board 57 percent reduction on Regional Council funding would severely deny the opportunity of achieving the fisheries development potential in our region and it would abandon domestic fisheries at precisely the time when the momentum of development is building and when management will be most required. The proposed budget would aborgate the Council's responsibilities in many, if not most, aspects of its work. A 57 percent cut in our Regional Council's budget would reduce Council meetings to two per year, eliminate most private sector participation in Council matters, out heavily into Council staffing, and severly endanger the continuation of our present accomplishments and the fulfillment of economic growth potentials of island areas. The proposed budget reduction is a manifestation of the ignorance of economic conditions in the island areas of the potential economic value of island fisheries. Without an idication of a reasonable funding commitment to fisheries in the region it wil be impossible for the Council to operate in an effective manner. A much larger budget commitment is necessary for us to continue our work. The Council has accomplished much with limited staff and with limited resources. Like everyone else, we are exercising spending restraints, but we need a reasonable budget that is in line with the national polciy to improve the economic climate and competitive position of the demestic fisheries in our areas. We ask Members of this Committee to help us to continue a rational and forward-looking fisheries program in our region. Thank you for the opportunity to present these comments.

THE UNIVERSITY OF WISCONSIN—MILWAUKEE,
Milwaukee, Wis., February 23, 1983.

Senator SLADE GORTON,
Chairman, Science, Technology and Space Subcommittee,
Washington, D.C.

DEAR SENATOR GORTON: A year ago on this date I sent the enclosed letter to Wisconsin legislators and relevant Committee Chairmen expressing deep concern at the proposed budgetary elimination (within the National Oceanic and Atmospheric Administration, NOAA, Dept. Commerce) of the Great Lakes Environmental Research Laboratory (GLERL) in Ann Arbor, Michigan. The welcome support then generated among the legislative and scientific community brought about a reprieve; but distressingly GLERL is again faced with elimination from the proposed Federal 1984 Budget. Although averse to taking up the time of busy legislators, I am again impelled to seek the assistance which you may be able to give in re-instating GLERL as a nationally valuable source of knowledge and advice on publicly pressing matters relating to the Great Lakes region.

The points I made in that letter are even more valid today. GLERL is a small laboratory; but in my opinion it comprises the top research team in the country devoted to improved understanding and thence to wise management of the Great Lakes as a very large and multi-faceted national resource. I say this advisedly, even though I see the need for streamlining government support for research in this region, with universities playing a major role in fundamental research. The GLERL has built up a very good national (and indeed international) track record and combines, in a way not matched by any other group, outstanding achievements in what may be called strategic basic research into both physical and biological processes of pressing public importance (for example, storm and ice forecasting, water movements and water quality) leading to the development of powerful tools for predictive modelling of the coupled interactions of hydrodynamic and chemical/biological processes. Dispersal of this unique team now would be, in my view, the most serious single blow which could be dealt, in the long term, to the cause of wise public legislation and expenditure in the Great Lakes region.

I trust, therefore, that you will be able again to use your good offices to ensure that precious "seed corn" is not scattered and lost.

Yours sincerely,

C. H. MORTIMER, F.R.S.,
Distinguished Professor Emeritus in Zoology and Senior Scientist (former director), Center for Great Lakes Studies, University of Wisconsin—Milwaukee.

NATIONAL FISHERIES INSTITUTE, INC.,
Washington, D.C., February 24, 1983.

Hon. BOB PACKWOOD,
Chairman, Senate Committee on Commerce, Science, and Transportation, Washington, D.C.

DEAR MR. CHAIRMAN: As a national trade association representing more than 1,200 companies involved in the harvesting, processing and distribution of fish and seafood products, the National Fisheries Institute (NFI) wishes to comment on the reauthorization of Title III of the Marine Protection, Research and Sanctuaries Act of 1972. During previous reauthorization hearings on this Act, NFI expressed deep concern with the expansion and focus of the Marine Sanctuary Program established under Title III. This continues to be of great concern to us.

Past rationale used to justify marine sanctuary designations has suggested an intent to use the program as a comprehensive ocean use management tool. NFI believes Congress did not provide the Secretary of Commerce with sweeping authority to regulate multiple use of the oceans under Title III. We support a more narrow focus which recognizes other significant marine resource protection legislation and restricts the application of the marine sanctuary statute to particular instances where existing law and regulations do not provide sufficient protection.

Past House Committee Report language expressed the Merchant Marine and Fisheries Committee's intent that the Secretary in exercising authority under Title III "shall avoid duplicative regulatory authority and additional layers of bureaucracy where existing law and regulations provide sufficient protection". This complements NFI's understanding of how the Marine Sanctuary Program should be implemented. However, after reviewing marine sanctuary site proposals for the Gulf of Mexico in 1982, NFI found, in most instances, that the "rationale for consideration of a sanctuary" did not include any finding that the area could not be adequate managed and regulated under existing statutes. For example, the proposed site at the Shoalwater Bay-Chandeleur Sound location was identified as an important spawning and nursery ground for fish, shrimp and crab, and as a fishery habitat which contributed significantly to commercial fisheries and recreational activities in which management was deemed to be in the public interest. NFI members in Louisiana advised us that existing State and Federal fishery management entites could adequately manage and regulate the fishery habitat in that area.

In reference to fisheries management, we strongly feel that regulations should not be promulgated through a marine sanctuary proposal as long as fishing activities can be regulated through the Regional Fishery Management Councils. Congress established a sound system to address fishery management needs under the Magnuson Fishery Conservation and Management Act (MFCMA). Fishery regulations established under a marine sanctuary, at best, duplicate Council efforts and may even conflict with regulations established pursuant to the MFCMA.

NFI would support amendments to the Marine Protection, Research and Sanctuaries Act that require the Secretary of Commerce to follow specific criteria in making a determination of the need for marine sanctuaries under Section 302(a), and prohibit sanctuary designations if effective implementation of existing Federal and State authorities provide an equal level of protection. A proposed amendment to Section 302 is attached for your consideration.

Sincerely,

RICHARD E. GUTTING, Jr.,
Vice President—Government Relations.

Attachment.

AMENDMENT TO THE MARINE PROTECTION AND SANCTUARIES ACT

Section 302 of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1432 is amended—by inserting "(1)" after "(a)", and by inserting at the end thereof the following new paragraphs:

"(2) In making the determination required in Paragraph 1, the Secretary shall review such areas in accordance with the following criteria:

"(1) The extent to which existing state and federal regulatory authorities provide a basis for the protection of the values for which a sanctuary may be designated;

"(2) An assessment of the extent to which the coordination of existing federal and state regulatory authorities will provide a level of protection equal to that available under this section;

"(3) The severity and imminence of existing or potential threats to the resources found within such area;

"(4) The type and estimated value of the natural resources and human uses within such area, and the probable impact on such uses and natural resources of regulations which may be issued to control activities permitted within such area, as well as the benefits to be derived from protecting or enhancing the resources within the sanctuary;

"(5) The extent to which a sanctuary designation is necessary to permit research opportunities on a particular type of ecosystem or on marine biological and physical processes;

"(6) The value of such area for one or more life-cycle activities, including breeding, feeding, rearing young, staging, resting or migrating of the following:

(i) rare, endangered or threatened species;
(ii) species with limited geographic distribution;
(iii) species rare in the waters to which the Act applies; and
(iv) commercially or recreationally valuable marine species.

"(3) In evaluating the criteria listed in Paragraph 2, the Secretary shall give due consideration to the relative values of each criterion; except that the Secretary shall not designate any such area as a marine sanctuary if he determines that the coordination of existing federal and state regulatory authority will provide protection for such area equal to that possible pursuant to a sanctuary designation."

GULF OF MEXICO FISHERY MANAGEMENT COUNCIL,
Tampa, Fla., March 1, 1983.

Hon. BOB PACKWOOD,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Washington, D.C.

DEAR SENATOR PACKWOOD: At the suggestion of your staff we are providing this letter for consideration by your Committee in its review of the proposed Administration fiscal year 1984 budget for marine fisheries and ask that it be made part of the hearing record. The proposed funding levels for Council operations in this budget are of grave concern to our Council and would effectively emasculate the management system so carefully structured by Congress under the Magnuson Act. The Congressional effort, judgement and wisdom applied in establishing this management system would be for nought.

The Magnuson Act has provided multiple benefits to the domestic fisherman and to the national economy. Passage of this act was timely in that many of our fisheries within federal waters were in need of management to increase productivity and insure that overfishing did not occur.

The fiscal year 1984 budget reductions proposed by the administration would jeopardize continued effectiveness of this system and would impair the realization of additional economic benefits to the fishermen and national economy. We believe that such drastic reduction in funding levels are not in the best interests of the nation and are, in fact, counterproductive to achieving the purposes of the Act as set forth by Congress.

Some of the economic benefits achieved for major fisheries of the Gulf region are summarized in order to acquaint you with the effectiveness of fisheries management under the Act. One measure in one plan, our shrimp plan, yielded a first season benefit of 9.4 million dollars and 4.0 million pounds of increased production. The entire set of provisions in this shrimp plan yielded a total annual benefit of 12.1 million dollars to the fishermen in 1981. These benefits would not have been possible without the Magnuson Act and they greatly exceed the costs of Council operation under the Act. Our lobster plan will increase production by 1.5 million pounds and revenue by 3.3 million dollars. Our reef fish plan over five years is expected to increase commercial fishermen's revenue by 6.1 million dollars and recreational expenditures by 41 million dollars. All of these benefits cited are at the exvessel or primary economic level and, of course, result in much greater economic benefits to the nation as the products are passed through the various levels of our economy.

It has always seemed somewhat of a double standard in that the national government has an enormous fiscal commitment to the support of agriculture while the commitment to fisheries has always been miserly. The entire NMFS budget is only about twice the amount that the State of Texas, my home state, spends annuially on management of its fish, wildlife and outdoor recreational resources; and the total appropriation for Council operations needed to carry out the congressional mandate set forth in the Magnuson Act was less than five percent of the 1983 budget allocation for NMFS. While fisheries production is certainly not as extensive as that for agriculture it does have similar potential for increasing our national wealth. Our commercial industry has the potential to make this nation a major exporter of fishery products, benefiting the economy as well as our foreign exchange balance. Utilization of our fisheries resources by recreational fishermen has tremendous potential for improving our economy. A recent evaluation of the marine recreational fishery in the State of Florida indicated that anglers were generating five billion dollars of income to residents of that state and 147 million dollars of tax revenue. Because of the knowledge we have gained of the fishery stocks of our region we do not believe the same level of continued productivity or increased productivity and revenue will be derived from these stocks without proper management in the federal waters.

The proposed 57 percent budget reduction by the Administration to a level of 3.2 million dollars for Council operations would seriously and unequivocally adversely impact our ability to assure increased productivity and proper management and to prevent overfishing of highly exploited stocks. Several such stocks in our region, such as mackerel and reef fish, will require constant monitoring and management action in the very near future to assure that the stocks do not decline in abundance or collapse.

Of concern to the Council also are proposed budget reductions for NMFS which will adversely affect many of their programs essential to management of this nation's fishery resources, such as those proposed in the areas of collection of fishery landing statistics and environmental assessment, both of which are critical elements to assure continued productivity of these renewable resources.

One paradox in the Administration budget is the proposed increase of 5.0 million dollars in foreign observer funding while at the same time reduction of funding levels for the Councils who must act upon this observer information. We are doubtful that such a level of funding for observers is necessary or will be utilized by NMFS, particularly as the P.L. 97-453 Amendment of the Magnuson Act allows for direct payment for observers by foreign vessels.

Our Council is well aware of the requirement for reduction of federal expenditure and has always conducted our fiscal affairs in a responsible and conservative manner. This is reflected by the reduction of Council meetings to those necessary to fulfill our obligation to Congress, by reduction of staff to a level required to accomplish the necessary tasks, and by implementation of cost savings relating to travel and all other expenses. As a consequence of this action, our budget levels have declined since 1980. We will continue to institute actions to reduce expenditures but are currently very near a budgetary level where significant further reduction would impair our ability to function efficiently and to avail ourselves of the participation of the fishermen and scientific advisors in the management process.

We, therefore, ask that you take action to modify the proposed Administration budget so that we and NMFS may carry out our mandate under the Act to assure continued and increased productivity of our fishery resources. I thank you for this opportunity to express our concern to the committee and will be present at your hearing to answer any questions.

Best regards.

Sincerely,

JOHN M. GREEN, *Chairman.*

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL,
Dover, Del., March 3, 1983.

Hon. BOB PACKWOOD,
Chairman, Senate Committee on Commerce, Science, and Transportation, Washington, D.C.

DEAR SENATOR PACKWOOD: Thank you for the opportunity to submit our view on the proposed NMFS fishery budget. We will not comment on the entire budget but only the portion dealing with the Councils.

The Council was not consulted on the proposed budget as to the impacts of the suggested cuts even though we have been assured, at the last three Council Chairmen's meetings, that we would be involved in the budget process.

The Administration's proposed 57 percent reduction would eliminate the Council as an effective mechanism for developing fishery policy. We feel we have been an important part in policy development. A review of our plans, particularly squid, mackerel and butterfish, will bear this out. We currently have only 7 staff members to complete three management plans during fiscal year 1983 and three additional plans in fiscal year 1984. These plans are well along in the process at this time.

Any cuts in the budget would result in an extension of the development time of these plans and necessitate less public involvement. We can live with level funding adjusted for inflation and fully appreciate the need for a conscientious effort to reduce federal spending.

A review of the Council's expenditures on page 4 of the attached document, entitled "Mid-Atlantic Council accomplishments and Expenditures" will show that we have taken expenditures seriously and cannot be expected to take future cuts and continue to effect the savings and income potential in the future as we have to date.

In conclusion, our proposal is that, as a minimum, the Council should be funded at the fiscal year 1982 level ($516,700), adjusted for inflation. This is true level funding. As discussed above, the Council has brought about real improvements in the U.S. fishing industry. However, the Council must be permitted to function at its current level if those gains are to be maintained and similar improvements are to be realized in other fisheries. Council plans have resulted in increases of over $68,000,000 to the U.S. fishing industry (see page 7 of the report).

If you have any additional questions, please contact me.

Sincerely,

JOHN C. BRYSON.

Enclosures.

MID-ATLANTIC COUNCIL ACCOMPLISHMENTS AND EXPENDITURES

We believe it is important to establish an understanding of what is being returned for the money spent by the Mid-Atlantic Council. The following is a summary of the Council's operational approach, the impacts of the management plans currently in effect, and a review of Council expenditures.

FISHERY MANAGEMENT PLAN PROCESS

Soon after it was created the Council recognized that many of the species in the northwest Atlantic fishery conservation zone could not rationally be managed on a Council by Council basis. This led to a joint meeting with the New England Council at which agreements were reached on which of the two Councils would take primary responsibility of managing each of the species that were considered in need of management. That agreement, with minor modifications, is still in existence and has resulted in a very efficient system of specialization in plan preparation while allowing both Councils and the affected industry opportunity for review and comment.

Another basic policy that is still in effect is that the Council would develop plans when they were needed based on the best information available at the time, with any necessary refinements required by improved information made by subsequent amendments. This policy has allowed management of priority species to move forward quite rapidly, with significant benefits to industry.

The Council also decided that management plans would be prepared primarily by Council staff based on stock assessments and related scientific information from the Northeast Fisheries Center and data from the National Marine Fisheries Service (NMFS). This resulted in cost and time savings since the Council's staff has never exceeded nine members (currently 7 members), the staff can develop plans directly based on Council decisions rather than overseeing the work of consultants, and there was no need to duplicate programs already in existence in NMFS. In addition, the use of NMFS data and scientific advice eliminates those considerations as issues during NMFS review and approval of plans.

The initial plans were written for one year time periods with optimum yield, domestic annual harvest, and other quantities specified in the plans. This led to many amendments, in some cases only to extend the plans for another year. The obvious inefficiency of this approach resulted in the Council changing its plans to a multi-year basis with the necessary quantities developed annually in accordance with procedures and limits specified in the plans. This change to a "framework plan" approach was implemented first for the Surf Clam and Ocean Quahog Fishery Management Plan beginning 1 January 1982 and thus far has worked successfully.

SURF CLAM AND OCEAN QUAHOG FISHERY MANAGEMENT PLAN

NMFS, State, and industry representatives began the development of a management plan for the surf clam fishery in the mid-Atlantic in the late 1960s under the State-Federal Fishery Management Program. That effort resulted in the preparation of a draft management plan in early 1977. However, implementation of that plan became an issue because there was no mechanism available to uniform regional implementation. To solve that problem, the Council was asked to take over responsibility for surf clam management and prepare a management plan pursuant to the Magnuson Act.

At that point, there was a need for rapid and dramatic action because the surf clam resource was severely depleted through overfishing and the fishing fleet was increasing rapidly. The Council aopted the draft plan that had been prepared by the State-Federal Fishery Management Program for purposes of public hearings. The management regime in the draft plan was revised based on comments at the hearings. The plan was rewritten to bring it into compliance with the requirements of the Magnuson Act. Following Council adoption of the revised plan, it was submitted to NMFS and approved in November, 1977, for the period through September 1979. The original Plan imposed a strict management regime for surf clams, including annual and quarterly quotas, regulation of the hours that each vessel could fish per week, and a moratorium on entry of additional vessels into the fishery. In addition, because the ocean quahog fishery was beginning to develop, partly in response to the shortage of surf clams, the Plan included an annual ocean quahog quota to guard against that species from being overfished.

There have been three amendments to the Plan to refine the basic management system, remove the New England surf clam fishery from the moratorium, and impose a 5½" surf clam minimum size limit in the mid-Atlantic. However, the basic management approach of annual and quarterly quotas, restriction of fishing hours, and a moratorium on entry of additional vessels, remains in effect.

The Plan has been extremely successful in both providing a framework for the surf clam resource to rebuild and in minimizing negative impacts on a harvesting sector that has the capacity to harvest at least five times the maximum allowable catch. The surf clam resource has rebuilt to the point where the annual quota for the fishery conservation zone has been increased by ⅓, from 30 to 40 million pounds of meats. These increases are beneficial not only to the fishing industry, but also to consumers through increased availability of clam products at reduced prices.

ATLANTIC MACKEREL, SQUID, AND BUTTERFISH

In the squid, Atlantic mackerel, and butterfish fisheries, management has evolved from a series of separate one year plans to a joint multi-year framework plan.

Management began with the original Atlantic Mackerel Plan in mid-1977, primarily in response to a resource that was severely depleted and continuing to decline. The stock condition was caused by the catch of mackerel by foreign fleets in U.S. waters between 1970 and 1976 which ranged between 205,000 and 385,000 metric tons (mt) annually. During the same period the U.S. commercial fishery generally accounted for less than 2,000 mt. The Plan reduced the total allowable foreign catch to 1,200 mt, a level intended to limit the foreign catch to only bycatch in other fisheries. The total U.S. catch (commercial and recreational) was limited to 14,000 mt. This strategy was successful to the point that the allowable mackerel catch in U.S. waters for the fishing year beginning 1 April 1983 will be 58,800 mt.

Management of Illex and Loligo squid and butterfish was undertaken primarily to establish a basis for the development of the U.S. fishery for these species. Historically these species had small markets in the U.S. but substantial foreign markets, as demonstrated by significant foreign catches which averaged 25,214 mt of Loligo and 15,644 for Illex for the period 1970–1977. The Council adopted the philosophy that as long as foreign nations were allowed to harvest these species at high levels, there would be no opportunity for U.S. fishermen to enter the potential export market.

Squid processing is technically complicated, but butterfish processing involves only freezing and packaging, so the Council decided to initially target on butterfish. The original butterfish Plan set the maximum allowable catch at 11,000 mt, well below the biologically acceptable maximum and established a maximum foreign catch of 4,000 mt (the foreign catch ranged from 8,913 mt to 31,679 mt in the years prior to implementation of this policy). As with mackerel, the foreign allocation was intended to give foreign nations only the butterfish they needed as bycatch in other fisheries. This strategy has paid off handsomely. In 1976, the year the Magnuson Act became law, the butterfish catch was 1,528 mt by the U.S. and 14,309 mt by foreign nations. In 1982 the catch was 7,804 mt by the U.S. and 817 mt by foreign nations. In 1976, the U.S. catch amounted to $976,902 paid to U.S. fishermen (ex-vessel value). For 1982, the ex-vessel value was $8,430,302. When adjusted for inflation this represents a real increase of 410 percent. Much of the butterfish catch is exported. For 1982, the total value to the U.S. industry of butterfish exports is estimated at $15,484,000 including the price paid to fishermen, processing, and shipping. Obviously, this provided employment opportunities for U.S. fishermen and, since much of the increase in landings is exported, was effective in reducing the trade deficit.

In response to Plan initiatives, the squid fishery is also developing. While the Loligo fishery is showing some growth (from 3,602 mt in 1976 to 4,864 mt in 1982), the Illex fishery development is significant. U.S. landings increased from 229 mt in 1976 to 10,000 mt in 1982 while the foreign catch decreased from 24,707 mt in 1976 to 12,970 in 1982. Note that 2,338 mt of the Illex and 1,094 mt of the Loligo U.S. catch in 1982 was accounted for by joint ventures, an important interim mechanism for the development of these fisheries because of the technical processing problems. In terms of ex-vessel value, Illex increased from $40,388 in 1976 to $2,425,060 in 1982. When adjusted for inflation this represents a real increase of 3,451 percent. The total value of U.S. exports, including price paid to fishermen, processing, and shipping, for Illex for 1982 is estimated at $8,708,800.

The development of the squid and butterfish fisheries and the rebuilding of the mackerel stock led the Council to develop a multi-year framework plan combining the Atlantic Mackerel, Squid, and Butterfish Plans. The fisheries for these species are interrelated. In addition, joint ventures and other market development strategies are facilitated by managing the species jointly. This new joint plan not only eliminates the need to amend the plans to set annual allowable catch levels, but also permits in-season adjustments to those levels in order to enhance market development.

Catch estimates for the fishing year beginning 1 April 1983 are very optimistic. For Illex, based on estimates of U.S. processors and applications for joint ventures, it appears that U.S. fishermen will catch almost all of the biologically acceptable catch of 30,000 mt (current applications for joint ventures exceed the amount of Illex available). Butterfish landings are expected to continue their increase during the coming year, with the U.S. catch anticipated to exceed 11,000–12,000 mt.

It is important to recognize the total growth potential of these fisheries. The maximum allowable U.S. catch of butterfish, Illex, and Loligo is approximately 15,500 mt, 29,500 mt, and 43,500 mt, respectively. At 1982 ex-vessel prices, this catch level amounts to $16,743,937 for butterfish, $7,153,927 for Illex, and $43,155,050 for Loligo. Mackerel is more difficult to forecast because of natural stock fluctuations but, if it is conservatively assumed that the allowable catch for the fishing year beginning 1 April 1983 (58,800 mt) is the average allowable total catch, and allowing 500 mt for the foreign bycatch and assuming 1982 prices, then the U.S. fishery could amount to $28,372,202. If processing and shipping are added to the prices paid to fishermen, and using 1982 prices, then the total value of the butterfish, Illex, and Loligo fisheries to the U.S. economy is $30,753,000, $26,013,000, and $73,950,000, respectively.

COUNCIL EXPENDITURES

The Council has been successful in its management of surf clams, ocean quahogs, squid, mackerel, and butterfish. However, these are not the only species the Council has been involved with. The Bluefish Plan is about to go to public hearings. The Summer Flounder Plan is being finalized. A plan for the tilefish fishery is being developed. The Council, working in conjunction with the New England Council, is completing work on a comprehensive amendment to all existing management plans that will implement measures designed to elimiante gear damage and conflicts between fixed and mobile gear fishermen. Also, the Council works with the New England and South Atlantic Councils on their plans for groundfish, scallops, lobsters, billfish and swordfish.

ADMINISTRATIVE

Mid-Atlantic Council administrative expenditures have been:

Fiscal year	Expenditures	
	Actual	Adjusted for inflation [1]
1977	$177,928.54	$98,032.25
1978	430,379.07	220,255.41
1979	411,267.62	189,175.54
1980	453,587.66	183,787.54
1981	456,302.68	167,758.34
1982	483,215.18	167,608.46

[1] Consumer prices, all items, series 320 (1967=100).

Fiscal year 1977 was the first year of Council operations and is not applicable for comparative purposes. In actual terms, expenditures increased on 12 percent between 1978 and 1982, and decreased by 24 percent when adjusted for inflation.

At this time the Council does not have an approved budget for fiscal year 1983. We are funded only for the first six months of the year for $232,500. Our final budget for fiscal year 1982 was $516,700, so the funding for the first half of fiscal year 1983 represents half of 90 percent of our fiscal year 1982 budget.

We have just completed preparation of a budget for the second half of fiscal year 1983. We estimate that we will need $359,355 for the second half of the year, for an annual total of $591,855. While this represents a significant increase over the fiscal year 1982 budget and expenditures, the increases are largely in the personnel and travel categories and result to a significant degree from the fact that several plans will be ready for public hearings (35 are anticipated) between now and the end of the year.

PROGRAMMATIC

The Council has had three projects to hire contractors for work that could not be done by other means. Between October 1978 and February 1981 a consultant was hired for a total cost of $210,000 to develop a comprehensive socio-economic data inventory of the mid-Atlantic, a project designed to provide data for management plans that were not available from NMFS. There have been two projects, totalling $44,900, one of which is still under way, with Rutgers University to survey surf clam beds to determine whether they should be closed to fishing because they contain large numbers of undersized clams (NMFS cannot do this because it involves detailed work in relatively small areas), for which we will need an additional $22,000 during fiscal year 1983.

IMPACT OF FUNDING REDUCTIONS

As discussed above, the Council's expenditures have not even kept pace with inflation. It is our belief that, if we would be funded at the fiscal year 1982 level ($516,700), with annual adjustments for inflation, we could function adequately. Reductions below that level would seriously impair our program.

We have already laid off one employee, so we have only seven staff members. Reductions below that level would significantly limit effectiveness.

Costs other than personnel and travel (equipment, supplies, contractual, and other) are at their minimum effective levels and should remain constant except for inflation.

Therefore, the categories affected by budget reductions are essentially Council member compensation and travel. Note that our Council has 12 members entitled to both compensation and travel reimbursement and 7 additional members entitled to travel reimbursement only. The budget we are proposing for fiscal 1983 is based on the following schedules for Council member compensation and travel:

COMPENSATION (12 COUNCIL MEMBERS AT $245.38 PER DAY)

	Members	Meetings	Days/meeting	Cost
Council meetings	12	4	3	$35,335
Council meetings	12	6	2	35,335
Committee meetings	5	18	1	22,084
AP meetings	3	10	1	7,361
Liaison, other Councils	2	12	3	17,667
Hearings	1	35	1	8,588
Other meetings	3	15	1	11,042
Total				137,412

TRAVEL

	Persons	Trips or meetings	Days/meeting	Cost/person/meeting	Cost	Total
Council:						
Council meetings	19	4	3	$75	$17,100	
Council meetings	19	6	2	100	22,800	
Committee meetings	5	18	1	100	9,000	
AP meetings	3	10	1	100	3,000	
Liasion, other Councils	2	12	3	150	10,800	
Hearings	1	35	1	100	3,500	
Other meetings	3	15	1	100	4,500	70,700
Staff:						
Council meetings	4	4	3	50	2,400	
Council meetings	4	6	2	65	3,120	

TRAVEL—Continued

	Persons	Trips or meetings	Days/meeting	Cost/person/meeting	Cost	Total
Committee meetings	2	18	1	20	720	
AP meetings	2	10	1	20	400	
Hearings	1	35	1	75	2,625	
SSC meetings	2	4	1	20	160	
Other meetings	2	15	1	200	6,000	15,425
SSC	9	4	1	150		5,400
AP	12	10	1	75		9,000
Total						100,525

Council meetings are November, January, February, March, April, May, June, July, August, and September. To the extent possible, meetings will be held for 2 days. However, it may be necessary to schedule some 3 day meetings.

Hearings for which the Mid-Atlantic Council has financial responsibility are:

Swordfish Plan—4 in the Mid-Atlantic

Bluefish Plan—6 in New England, 6 in the Mid-Atlantic, and 9 in the South Atlantic

Surf Clam and Ocean Quahog Plan Amendment # 4—1 in New England, 3 in the Mid-Atlantic

Gear Conflict Amendment—5 in the Mid-Atlantic, 1 in the South Atlantic

The Swordfish Plan is a join plan, so the Mid-Atlantic Council is only responsible for the mid-Atlantic area. The Bluefish and Surf Clam and Ocean Quahog Plans are the sole responsibility of the Mid-Atlantic Council, but the management units extend beyond the mid-Atlantic area. Note that the Bluefish Plan hearings in the New England and South Atlantic areas are those actually requested by those Councils, not an estimate. The Gear Conflict Amendment affects the area from Cape Hatteras, North Carolina, north, but is being done jointly with the New England Council; therefore, the Mid-Atlantic Council has responsibility for the hearings in the mid-Atlantic and in North Carolina.

ADMINISTRATIVE EXPENDITURES RELATIVE TO VALUE OF MANAGED FISHERIES

To put the administrative expenditures in perspective, it is useful to examine the value to the fishermen of the fisheries being managed. In 1982, ex-vessel values were:

Species	*Ex-vessel value*
Surf clam	$24,087,700
Ocean quahog	9,580,492
Illex	2,425,600
Loligo	4,825,429
Mackerel	1,427,825
Butterfish	8,430,302
Total	50,776,808

Therefore, the fiscal year 1982 administrative expenditures of the Council amounted to 0.95 percent of the ex-vessel value only of the fisheries actually being managed.

Perhaps a more important consideration is the increased income to the US industry as a result of the Council's plans. The significant increases are:

1. The Surf Clam and Ocean Quahog Plan has provided for a stock recovery leading to a quota increase of 10 million pounds (from 30 to 40 million pounds). At current prices, that amounts to an annual increase to fishermen of approximately $5.2 million.
2. Butterfish ex-vessel value increased from $976,902 in 1976 to a total value of $15,484,000 in 1982, an increase of 410 percent after adjusting for inflation and an expected value of $21,826,000 in 1983.
3. *Illex* ex-vessel value increased from $40,388 in 1976 to a total value of $8,708,000 in 1982, an increase of 3,451 percent after adjusting for inflation and an expected value of $26,013,000 in 1983 (joint ventures applied for).

4. *Loligo* ex-vessel value in 1976 was $1,588,000. The 1983 value (based on joint venture applications to date) is $17,654,000.

5. By 1983, these four plans should lead to an increase of over $68,000,000 to the US fishing industry and economy annually. The total growth potential of these fisheries (at 1982 ex-vessel prices) is $16,743,937 for butterfish, $7,153,927 for *Illex*, $43,155,050 for *Loligo*, and at least $28,372,202 for mackerel. If processing and shipping are added to the prices paid to fishermen, and using 1982 prices, then the total value of the butterfish, *Illex*, and *Loligo* fisheries to the US economy is $30,752,755, $26,013,100, and $73,950,000, respectively. We expect *Illex* to reach this potential and butterfish to approach this potential during the fishing year that begins 1 April 1983.

Point Judith Fishermen's Cooperative Association, Inc.,
Narragansett, R.I., February 21, 1983.

Mr. David H. Hart,
Chairman, Mid-Atlantic Fishery Management Council,
Dover, Del.

Dear Chairman: The Point Judith Fishermen's Cooperative Association, Inc. would like to thank you and the Mid-Atlantic Fishery Management Council for the continued support you have shown us concerning the butterfish. Your council has been the lead council regarding butterfish, and even though it is not perfect the butterfish plan as developed by your council has been beneficial to us.

Our landings have increased over the years to the point where, for the calendar year 1982, approximately eleven million three hundred fifty thousand pounds have been landed and sold. At times we have had disagreements with interim methods used in solving butterfish problems, but not with the ultimate goal. We honestly believe our well being concerning the butterfish fishery had been because of your continued support and understanding of the problem.

Very truly yours,

Leonard J. Stasiukiewicz, *General Manager.*

Atlantic Offshore Fishermen's Association,
Newport, R.I.

Capt. David H. Hart,
Chairman, Mid-Atlantic Fishery Management Council,
Dover, Del.

Dear Captain Hart: On behalf of the Atlantic Offshore Fishermen's Association I would like to thank the Mid-Atlantic Fishery Management Council for its efforts to promote and protect the domestic fishing industry. Under extended jurisdiction the Mid-Atlantic Council took the initiative to use its management authority to achieve the utilization of our fishery resources for the greatest benefit to the U.S. This required not only the wisdom to take the initiative, but the determination to stick with the adopted policy until its benefits could be realized, despite opposing pressures. Our thriving butterfish fishery is the result of these Council actions.

More recently, the Mid-Atlantic Council has taken major steps to develop the squid industry of the East Coast. These actions promise to bear similar results to the butterfish experience, as is already being seen.

The Council is to be congratulated on its foresight. Striking out boldly in anticipation of the beneficial results, you refused to stand by and simply react to developments as they occurred.

As representatives of the fishing industry we thank you and look forward to a continuing productive relationship in the months ahead.

Sincerely yours for a better fishing industry.

William R. Palombo, *President.*

Caribbean Fishery Management Council,
Hato Rey, Puerto Rico, March 4, 1983.

Hon. Bob Packwood,
Chairman, U.S. Senate, Committee on Commerce, Science, and Transportation, Washington, D.C.

Dear Mr. Packwood: We appreciate very much the opportunity given to us to provide the Senate Committee on Commerce, Science and Transportation our written comments on the Administration's proposed fiscal year 1984 budget for marine fisheries. As individual presentations by the Councils at the hearings were not possible, we will appreciate if copies of this letter and attachment are distributed to your Committee members and are made part of the official record.

We have been unable to obtain a copy of the proposed budget documents, but we were informed that a 57 percent reduction in total Council budgets has been proposed for fiscal year 1984 (from $7.5 million to $4.3 million). It is our most sincere feeling that the Councils will not be able to satisfactorily operate under such financial constraints. A budget reduction of this magnitude will certainly signify the destruction of the Council system established under the MFCMA, a consequence that the National Marine Fisheries Service and NOAA are very well aware of.

As appertains our Council, fiscal year 1982 funding hardly met our needs. Even though available funds were used judiciously, and with austerity, we had no surplus funds at year end. Additionally, when a 10 percent reduction on the fiscal year 1983 budget was imposed on us, we were forced to adopt severe restrictions in our already constrained operations such as:

1. Reducing markedly Council, Scientific and Statistical Committee, and Advisory Panel meetings;
2. Reducing substantially Council, Scientific and Statistical Committee, Advisory Panel, and staff travel;
3. Eliminating necessary outside contracting for essential services to conduct business in a bilingual mode such as translation work, simultaneous transition of meetings, editing work, printing, etc.;
4. Maintaining vacant authorized staff positions;
5. Freezing step increases to all staff;
6. Reducing equipment rental substantially.

In spite of these measures, we anticipated operational deficits by the end of fiscal year. The situation was alleviated when the 10 percent funding was restored to the Council, but still remained at a critical level to properly perform the duties of this Council as required by MFCMA.

Even a 10 percent reduction in our already tight budget will have a substantial adverse impact considering that we have been operating on an already constrained budget. Attached for your perusal is an analysis of the impact of reductions of 57, 20, and 10 percent, based on fiscal year 1982 budget appropriations.

We suggest that the Councils be funded, at the very least, at a level equal to fiscal year 1982 expenditures. In effect, this would actually mean the second straight year of reduced funding, without even considering the fact that inflation continually reduces the purchasing power of each dollar spent by the Councils.

The Administration's desire to reduce federal expenditures is understandable and we share the opinion that level funding in a time of continuing inflation does amount to an effective reduction of constant dollars.

In terms of plan development, we believe that the Caribbean Council is now at the point of finally obtaining approval by the Secretary of Commerce for the fishery management plans which have been under development for some time. Our Spiny Lobster FMP was approved by the Secretary and the promulgation of the ensuing federal regulations is pending the adoption of compatible measures by the state governments, an action which is expected to occur in the very near future. A Shallow-Water Reef Fish Plan is presently under advance review by the NMFS Regional Office. A Coastal Migratory Pelagics FMP will be submitted shortly to NMFS. A Work Plan for a multi-species FMP of the Puerto Rican and U.S. Virgin Islands Gelogical Platforms is presently pending approval by NMFS.

Except for our spiny lobster fishery, other fisheries in dire need of management in our area are still without any management. Until such time as these fisheries are managed, we firmly believe that the present level of Council activities and operational costs are essential.

Finally, we should emphasize the fact that the Caribbean Fishery Management Council, due to its geographic location and involvement in Caribbean fishery affairs, should be viewed also in the context of the interest shown in it by other small island nations who are interested in developing a successful management strategy for their fishery resources. In most Caribbean countries, fisheries are the backbone of their economic and social structures and future U.S. fisheries policy in the Caribbean should acknowledge this fact. Additionally, continued support of Caribbean Council activities would be in line with the new policy thrust for the entire Caribbean Basin proposed by the present Administration.

We appreciate the opportunity given by your Committee to present our views on the proposed budget initiative for fiscal year 1984.

Sincerely,

SAMUEL E. ESPINOSA, *Chairman.*

Enclosure.

[Attachment 1]

CARIBBEAN FISHERY MANAGEMENT COUNCIL—BUDGET COMPARISON FISCAL YEAR 1982 AND PROPOSED BUDGET FOR FISCAL YEAR 1984

	Fiscal year—			
	Level funding 1982 [1]	10 percent reduction 1984	20 percent reduction 1984	57.5 percent reduciton 1984
A. Administrative (operational) expenses:				
1. Personnel:				
Council member compensation	$36,560	$29,210	$25,000	$14,000
Staff compensation	216,980	222,900	[2] 206,500	[3] 104,000
Total	253,540	252,110	231,500	118,000
2. Fringe benefits:				
Staff	59,650	64,840	60,000	31,000
Members	5,550	5,200	4,500	2,200
Total	65,200	70,040	64,500	33,200
3. Travel:				
Staff	19,530	16,650	16,000	10,000
Council members	20,330	18,350	18,000	10,000
S&S committee members	3,260	2,930	2,100	1,000
Advisory panel(s)	340	1,500	1,000	500
Other	5,710	1,550	1,000	500
Total	49,170	40,980	38,100	22,000
4. Equipment	13,450	500		
5. Supplies	7,150	6,000	6,000	2,000
6. Contractual	23,760	6,900	6,000	4,000
7. N/A				
8. Others:				
Transportation of things				
Rent office and parking	28,630	27,970	20,000	15,000
Communications (phone, postage)	7,100	7,500	7,000	5,000
Rent office equipment	18,150	13,600	6,000	2,000
Printing and reproduction	7,870	1,000	1,000	1,000
Insurance and taxes				
Training		500		
Miscellaneous (conference room)	1,680	1,000	500	
Total	63,430	51,570	34,500	23,000
Total administrative	475,700	428,100	380,600	202,200

[1] Actual expenses.

[2] Less 1 position.

[3] Less 5 positions.

THE UNIVERSITY OF MICHIGAN,
Ann Arbor, Mich., March 4, 1983.

Hon. BOB PACKWOOD,
U.S. Senate,
Washington, D.C.

DEAR SENATOR PACKWOOD: I had the pleasure of attending the hearing which you chaired on February 28, part of which was concerned with the Sea Grant Program. At one point you asked Dr. Wick from Oregon State University whether the states might be able to assume the federal government's share of funding for this program. Dr. Wick seemed very doubtful that this would be possible.

Here in Michigan, we have an established Sea Grant program which is a joint activity involving both Michigan State University and the University of Michigan; it is highly regarded in Lansing, but the State's financial situation is so bleak that there is no prospect of additional funding now or in the foreseeable future.

Enclosed is an excerpt from "The Reagan Experiment" by Palmer and Sawhill. Their analysis seems to indicate that states generally are less able to assume the burden of paying for orphan programs than was the case a few years ago. Thus, what is true in spades for Oregon and Michigan also pertains to some degree in a number of other states.

You are probably well versed in this matter, but I thought it would be well to make the point for the record, if it is still open.

DAVID V. HEEBINK,
Assistant to the President.

Enclosure.

CONCLUSIONS

One of the principal distinguishing characteristics of the Reagan experiment is the crucial role it assigns to the states in changing domestic priorities. The administration has proposed relinquishing many program responsibilities for the states to assume at their discretion. It has embarked on a plan to cut back federal mandates and federal funding so that the states can determine their own priorities untouched by federal directives. A program grounded in this philosophy must be evaluated by the effects it has at all levels of government (and in the private sector), not by changes in federal policy alone.

This chapter has emphasized that the Reagan initiatives arrived at a special moment in the states' own fiscal history. They had just completed three years of unprecedented tax cutting, largely depleting their current and prospective fiscal reserves in the process. This history has made it difficult economically for the states to replace lost federal funds or take over programs that the federal government has relinquished, even if they desired to do so. Politically, it is difficult for the states to recant their own commitment to tax relief and endeavor to raise taxes in reaction to federal tax reductions. As a result, the Reagan initiatives are much more likely to product *net* reductions in government activity today than would have been the case three or four years ago. It is not fanciful to speculate that if Ronald Reagan had been elected in 1976 and had implemented his proposed turnback at that time, much of the revolution in tax and spending reductions by state and local governments would have been preempted by federal initiatives, leaving a quite different mix of government activity.

Current constraints on the state and local sector make it less likely that the full set of New Federalism proposals will be put in place. Only if there is extremely strong economic growth between now and 1991 can the transfer of funding and program responsibilities that the administration proposes occur without large-scale tax increases or real spending reductions by state and local governments. The tension between the federal budget and state-local budgets is delicately balanced and dependent upon strong economic growth for its successful reconciliation.

The short-run signs of state budget reactions are consistent with this assessment. Most states have declined the opportunity to use state funds to increase program support under the new block grants. Often, the federal cuts have been passed on in state budgets without significant debate.

The states' primary attention is now focused on sorting out their own policy priorities. This has been made necessary by their tax restraints and budget gaps, but it is also being reinforced by changes in federal policies. One set of issues the states must resolve is their fiscal relations to the localities. Aid to local schools, property tax relief, and state controls over local tax and spending discretion all are receiving the reconsideration that tight budgets often produce. Another fundamental concern is what social welfare policies the states will pursue in the future. In both cases, federal program changes have altered the external inducements that states used to face. But the states' own desired policies are only now emerging from the budget debates.

There are signs that the administration will in the end retreat from a pure version of dual federalism as its objective in federalism reform. It has shown itself willing to discuss a uniform floor for AFDC payments, compensatory federal aid for states with low taxing capacity, and retention of federal program assistance for functions (like highways) that the states identify as of fundamental importance to them. Compared to the austerity of the New Federalism these are important political concessions. Compared to the state of federalism that Ronald Reagan inherited in 1981, however, even the modified program would represent remarkable movement toward the president's goal of restoring an older model of federalism to the country.

THE TEXAS SHRIMP ASSOCIATION,
Austin, Tex., March 8, 1983.

Hon. BOB PACKWOOD,
Chairman, National Ocean Policy Study,
Washington, D.C.

DEAR SENATOR PACKWOOD: The Texas Shrimp Association (TSA) is a trade association for the shrimp industry of Texas with a membership consisting of Texas residents as well as residents of other Gulf States. We are a harvester level association with our members taking shrimp from the Gulf of Mexico.

The TSA supports the recommendation made by the Senate Commerce Committee to restore funds in habitat conservation to the level of the FY 83 Continuing Resolution. This is a necessary area for federal funding. The funds are used by NOAA to conduct relevant research and to provide federal agencies with information and recommendations concerning the environmental effects of proposed projects which might affect marine fish populations and their habitats. The purpose is to eliminate or lessen the adverse impacts on the marine fish populations and their habitats by suggesting ways to proceed with the projects which are more mindful of the needs of the fishery stocks. This involves a balancing of several interests. The developers are generally quite capable of presenting their arguments before the decision makers. The balancing viewpoints must be presented by NOAA. The industry, the states and the fish do not have the expertise to counteract the claims made by developers.

Protection of fish habitats—in particular the marine estuarine bays—is of utmost importance to the TSA. These are the areas which comprise the shrimp nursery grounds. Without them, there would be no shrimp in the Gulf.

A second major concern of the TSA is the effect the proposed budget would have on the ability of NMFS to serve as a scientific organization—collecting data and providing stock assessments to the industry. It is essential that the industry have these assessments to enable our members to make sound business plans and decisions. We appreciate your work in supporting the NOAA fisheries research budget in this area.

While there is an integral relationship between ensuring perpetuation of the resource through habitat conservation and providing the capability to make sound business and fisheries management decisions based on accurate information, we must take a broader view. In addition to these major areas of concern, we believe a holistic approach to fisheries is important. Included in this approach, for example, must be Sea Grant, the fisheries development and financial services programs, and the grants to states for fishery programs. We support the recommendations of the Committee with regard to these programs as well.

Thank you for including our comments in the record.

Sincerely,

KRISTIN L. VEHRS.

NATIONAL COALITION FOR MARINE CONSERVATION, INC.,
Savannah, Ga., March 11, 1983.

Hon. BOB PACKWOOD,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Dirksen Senate Office Building, Washington, D.C.

DEAR SENATOR PACKWOOD: The National Coalition for Marine Conservation, Inc. (NCMC), a private non-profit organization with members in all of the coastal states, is dedicated to the conservation of marine fish and their habitat. We are very disturbed by the recommended program reductions for the National Oceanic and Atmospheric Administration (NOAA)/National Marine Fisheries Service (NMFS) included in the President's proposed fiscal year 1984 budget. It is clear from these cuts that it is the intent of this Administration to maintain the NOAA/NMFS focus on fisheries "development" programs while seriously curtailing the involvement of those agencies with fisheries research, conservation and management.

Historically, this country's natural resource utilization problems have been the direct result of just such a short-sighted approach—the promotion of resource development without requisite research and planning. This has been especially true of the exploitation of living marine resources, to the point today where so many of our traditional fisheries have been overfished that the NMFS must push the exploitation of such "under-utilized species" as dogfish and sting ray to give the domestic fishing industry hope for the future. This is not the situation that any reasonable person would envision in defining resource management. The benefits of management can only be realized if management decisions are based on the best possible understanding of the resources and their habitat, as well as the impact of man's activities on those resources.

In addition to the critical nature of research, management and conservation to the future of the nation's marine fisheries resources, making them an integral and indispensable part of any fisheries management policy, we believe that these areas are beyond the capability of the individual states and the private sector to provide and are thus, in contrast to many industry development activities, very properly a legitimate and important concern of the Federal government.

The NCMC has during the past several weeks consulted with the National Wildlife Federation, with whom we share a deep concern for the continued wise use of our ocean resources, and has had the opportunity to review the Federation's statement to the Senate Commerce Committee regarding the FY 84 budget. We would like to go on record as being in accord with the basic positions contained in that statement, and offer the following comments by way of emphasizing those aspects of the FY 84 budget proposal we regard as most critical.

The NCMC recommends that funding be maintained at existing (i.e., FY 83) budget levels for FY 84 in the following areas:

Habitat Research: An understanding of the role of habitat in fisheries production is possibly the single most important factor in fisheries conservation. Habitat is certainly one of our most threatened resources. It is also a resource of primary and common value to all marine resource users, commercial and recreational alike. The Administration's proposal to cut funding by half (−4,543,000) would severely limit NMFS's capability in this area, inhibit a more thorough understanding and evaluation of fisheries-related habitat, and would unrealistically limit the scope of fisheries management. The likely consequence would be a significant loss of fisheries production for many years to come.

Habitat Conservation: (−1,424,000) The NMFS Environmental Assessment Branch plays a crucial advisory role in the review of permit applications from developers whose projects would cause alterations in the nation's immensely valuable wetlands. Without the conservation recommendations of the NMFS there would be a continued and accelerated loss of habitat with a reduced ability to recognize and act on threats to related fisheries production.

Resource Survey Program: NOAA research vessels carry out environmental stock assessment, resource, and ichthyoplankton surveys which are vital to the agency's ability to obtain estimates of fish populations, to monitor the stocks, and to make predictions. The Administration's plan to "deactivate" eight of these vessels (−7,953,000) would have a severe impact in most if not all NMFS research areas. At the Southeast Fisheries Center, for example, research in the Atlantic and Caribbean would be terminated and work in the Gulf of Mexico greatly reduced.

The rationale for this reduction in vessel capability is the belief that private fishing vessels can be chartered for the same purpose at much lower cost. This demonstrates a potentially disastrous misunderstanding on the part of the budget planners of the true role of the vessels in conducting research. While it is true that the Northwest Fisheries Center has chartered fishing vessels at considerable savings, and that this has been totally appropriate for the limited assessment surveys they do, in other regions, however, the nature of the research and the vessels required make this approach impracticable if not impossible. Research vessels in the northwest operate much as commercial fishing vessels, and private vessels are often available for charter at low cost during the off-season. But elsewhere, as in the southeast, the vessels have been substantially modified and equipped for the specific types of research they are engaged in. Therefore commercial vessels would be unsuitable and, because fishing is not seasonal, private boats would be available for charter infrequently and at high cost.

Marine Recreational Fisheries: When the new leadership of the NMFS took office in 1981, it did so with renewed assurances to the marine recreational fishing community that this Administration was well aware of the economic and social values of recreational fishing and introduced a new agency policy designed to put this recognition into practice in the form of NMFS programs. The proposed cuts in the Marine Recreational Fisheries Program budget (−633,000) would seem to belie this commitment to marine recreational fisheries, leaving the agency with a relatively insignificant amount of funds dedicated to such critical needs as the acquisition and analysis of biological and ecological information on recreationally-important species. In addition to this is the virtual elimination of the National Marine Recreational Fishing Survey (−621,000), the only measure of participation, catch and effort by recreational fishermen for all geographical regions. Time and time again fisheries managers have stressed that accurate catch and effort data on recreational fishing is absolutely vital to meaningful fisheries management. The Regional Fishery Management Councils in particular have been continually handicapped by the lack of statistics on marine recreational fishing and as a result have not been able to function properly.

Anadromous Fish Conservation: Grants to states for anadromous fisheries have produced dramatic results. The return of Atlantic salmon to a number of rivers in the northeast is a case in point. These and other restoration efforts directed at anadromous species that migrate across state and even national boundaries are dependent upon Federal support for their continued success. Complimentary tagging studies are badly needed to enhance these efforts. For the Federal government to withdraw support at this time would mean that this progress in restoring some of our most valuable coastal fishes would be erased.

What these cuts would mean to the striped bass is of especial concern. Recently the NMFS determined that the Chesapeake strain of striper, which makes up 90% of the Atlantic-wide coastal stock, should not be listed as an endangered or threatened species under the Endangered Species Act, declaring that the implementation of the Interstate Fisheries Management Plan for Striped Bass "is the most effective action that can be taken at this time to reduce pressure on spawning stocks and enhance the ability of striped bass in Chesapeake Bay to recover from its decline." An essential part of this interstate effort to save the striped bass is the Emergency Striped Bass, which would receive no funding under the proposed budget. The Study gives invaluable support to striped bass management by monitoring the status of the stocks and conducting cooperative state/Federal research to determine the factors responsible for the decline. Research to date has demonstrated, among other things, that knowledge of striped bass and the possible causes of the decline (overfishing, habitat-loss, pollution) must be further enhanced or management efforts based on this knowledge will be inadequate. By cutting funds for the Emergency Study, the Administration would only be enhancing the striper's chances of someday making the endangered species list.

Ocean and Great Lakes Assessment and Research: By every indication, this Administration favors the increased use of the ocean for waste disposal. In this light, substantial reductions in funding for research and assessment of ocean dumping (−6,833,000) would be unconscionable. Studies of the effects of pollutants in such highly-stressed areas as the New York Bight would be terminated, which would in effect be one more step in the transfer of this productive fishing area from the fishermen to the sludge and toxic waste dumpers.

Also slated for termination are environmental studies of Chesapeake Bay (−250,000). The productivity of the nation's largest estuary, which serves as a nursery ground for fish caught from Maine to North Carolina, has been steadily deteriorating. Careful planning and management of the bay's resources is needed, but this must be supported by research leading to a better understanding of the present environmental problems and the prevention of further deterioration.

Regional Fishery Management Councils: With the reductions in fisheries and habitat research mentioned above, the Administration seems to be saying that we will have to make do with the scientific information that we now have, no matter how incomplete. With the proposed cuts in funds for the Regional Councils (−4,300,000), the Administration seems to be saying further that those fish stocks already being managed are the only ones that will be managed. The cuts will delay if not totally impede the management of any additional species under Council plans and prevent the improvement of existing plans. The Congressional mandate given the Councils by the Fishery Conservation and Management Act of 1976 would be thwarted, and contrary to the intent of that law, such cuts would promote damage to marine fish resources and subsequent reductions in domestic fish harvests.

National Advisory Committee on the Oceans and Atmosphere: NACOA would be terminated under the proposed budget (−551,000). The result would be that NOAA/NMFS would lose the counsel of a body of fisheries and ocean experts who contribute a healthy, non-Federal perspective to the programs and policies of those agencies.

Coastal Zone Management: The NCMC does share the Administration's commitment to eliminating unnecessary and/or wasteful programs, with the objective of creating a more efficient and responsive Federal system. In this regard, we believe a sizable reduction in funding for the Coastal Zone Management Program merits serious consideration. Nevertheless, while the Administration's cuts may be acceptable in terms of dollar figures, the total elimination of the States Assistance program may leave several important and valid aspects of the state/Federal coastal zone partnership unaddressed. For example, the Federal government's promotion of accelerated exploration and development of energy resources on the outer continental shelf will overextend the various states' ability to plan for and mitigate the adverse impacts of that development on coastal resources. In other words, though we would welcome the allocation of a portion of the CZM program funds to other, more effective uses within NOAA/NMFS, we do feel the Federal government should make available, through the States Assistance program, adequate funding to assist the states in dealing with the impacts of offshore energy development.

Thank you for your consideration, and for bringing these concerns to the attention of the Committee.

Sincerely,

KEN HINMAN,
Executive Director.

AMERICAN FISHERIES SOCIETY,
March 28, 1983.

Hon. BOB PACKWOOD,
Chairman, Commerce, Science, and Transportation Committee, U.S. Senate, Russell Senate Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: The American Fisheries Society appreciates the opportunity to present these written comments on the proposed Fiscal Year 1984 budget of the National Marine Fisheries Service. We request that these comments be made a part of the record of the Hearing before your Committee on March 10, 1983.

The American Fisheries Society, founded in 1870, is the world's oldest and largest organization of fisheries scientists. Our 8,000 members have been active in fisheries research, publishing, conservation, and enhancement for 113 years.

As we do each year, the Society has asked several of its senior members to study the proposed NMFS budget for fiscal year 1984. Our senior advisors include former Federal scientists and administrators, who are familiar with NMFS programs and know of their contributions. They are equally familiar with the budget process in both State and Federal Government, and understand the alternative ways to fund and operate the programs.

For over one hundred years the Federal Government has recognized the need to be involved in fisheries issues—even before the major regulatory and development legislation of the 1970's and 1980's became law. We find it rather incongruous that the fisheries budget should be proposed for a nearly 40 percent reduction at a time when the need for information and sound resource management has never been higher. This shortsighted proposal mortgages the future of our fishery resources, their environment, and those who depend on them for their livelihood, their protein and their recreation.

HISTORICAL REVIEW

Before we comment on the specific proposals in the 1984 Budget, AFS believes it will be beneficial to examine briefly the history of NMFS manpower and funds. We have been concerned ever since NMFS was transferred to NOAA in 1970, because the Agency has never been adequately staffed or funded to carry out the many natural resource responsibilities delegated to it.

With the thought that the Committee and others might gain a better perspective of the Agency's fiscal resource problems, AFS has prepared a summary of the manpower resources of NMFS since 1970 and has added a partial chronological list of legislative actions which have impacted the Agency during that time. In addition, numerous other pieces of legislation and court decisions have directly and indirectly placed major demands on NMFS. We urge that the Committee study these figures, but especially figure I.

Figure I reflects the manpower/legislation schedules; Figure II treats the budget in real dollars, and after 1975, in constant dollars; Figure III shows the rising value of U.S. Commercial Fish Landings in both real and constant dollars.

Figure I shows that between 1970 and 1983 the number of NMFS full time employees ranged from 1994 in 1970 to 1835 in 1983, with lows of 1710 in 1973 and 1724 in 1981. These fluctuations of about 14 percent in personnel numbers over 14 years constitutes near level funding. However, during this same period NMFS was given, through new legislation, amendments to existing legislation, and as a result of certain court decisions, enormous new workloads requiring additional staff in the hundreds. Regrettably, NMFS has been forced to review, reevaluate, replan, and reorganize its existing programs in endless repetition, borrowing from and cannibalizing one program after another in trying to meet new and growing responsibilties. Many new programs, responsibilities and workload have been thrust on NMFS, only to be funded and staffed at token levels. Many have been implemented by dropping (or otherwise neglecting) ongoing programs, and other programs have been parasitized, neglected or dropped to meet subsequent responsibility.

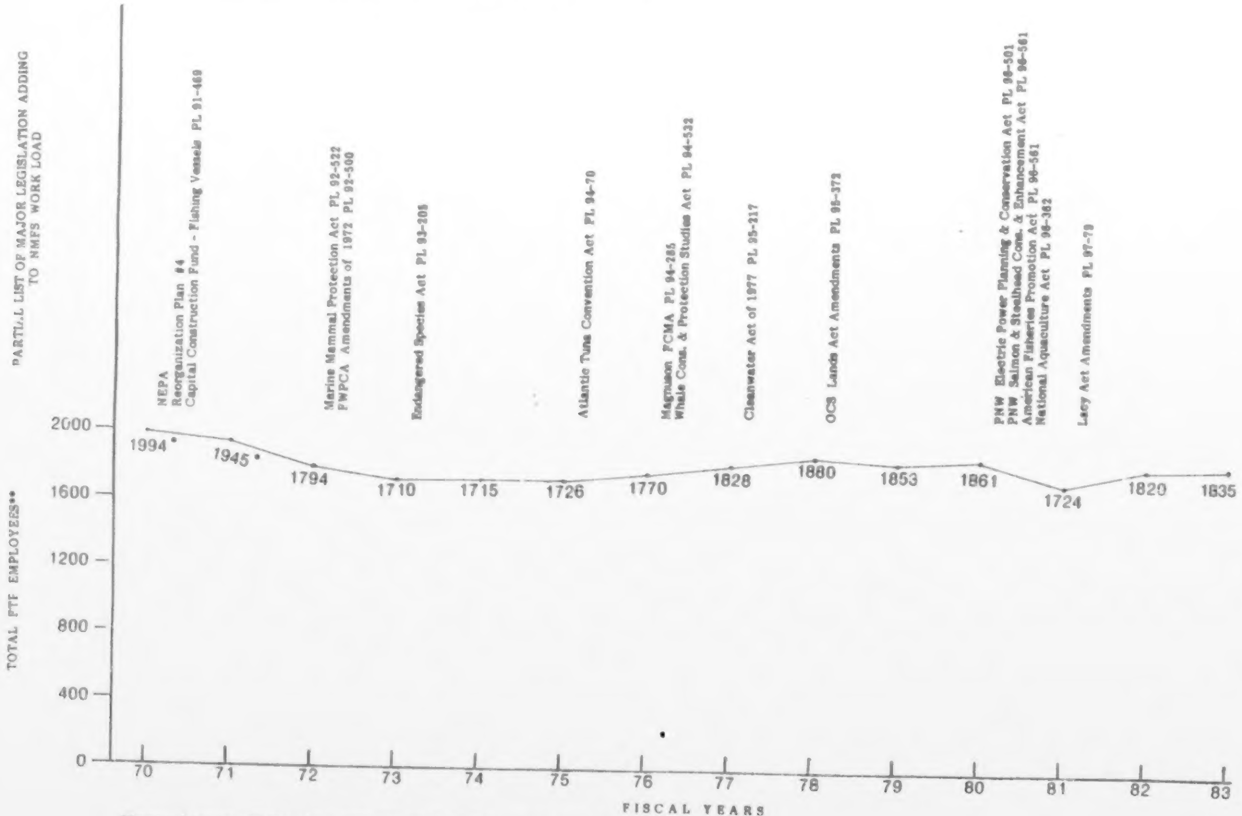
It is to the great credit of the staff of the NMFS that it has accomplished as much as it has. Many of its achievements have been brought about by Herculean effort coupled with stop-gap measures, including contracting out of some work, and encouraging States and industry to assume some of the functions. NMFS has also asked foreign fishermen to conduct research or gather information for the U.S. in connection with fishing rights in U.S. waters. Unfortunately, a great deal of the NMFS responsibility in some program areas has not been carried out, or has been only partially fulfilled because of fund and staffing limitations.

In Figure I we have listed major acts which have brought new responsibilities of NMFS, such as the Magnuson FCMA, the Marine Mammal Act, and Endangered Species Act. We have also listed acts which have resulted in substantial new work requirements being placed on NMFS from other agencies. [NEPA; PL92-500 (which greatly expanded NMFS Fish and Wildlife Coordination Act workload on NPDES permits, Section 404 and other activities:) Coastal Zone Management Act; the Marine Protection, Research and Sanctuaries Act; etc.]

We have not listed many somewhat less burdensome Acts which nevertheless expanded existing programs or gave NMFS substantial new responsibilities. Courft Decisions such as the Zabell vs. Tabb Decision in 1968 and the Bolt Decision have also resulted in substantial new workloads.

It is difficult for us to understand why the United States cannot, or will not, adequately fund and staff the one agency with the expertise needed to properly manage national fishery resources. U.S. fisheries represent one of the world's greatest renewable natural treasures, to wit about 20% of the world's resources, (a priceless source of high quality food), are found within our 200 mile coastal waters.

FIGURE I. — NMFS WORKFORCE—correlated with addition of new responsibilities.



*Bureau of Commercial Fisheries -- Includes Staff of NMFS Vessels and Great Lakes Fishery Lab.
**Actual FTP Employees on duty. May vary by one or two percent from "authorized" positions.

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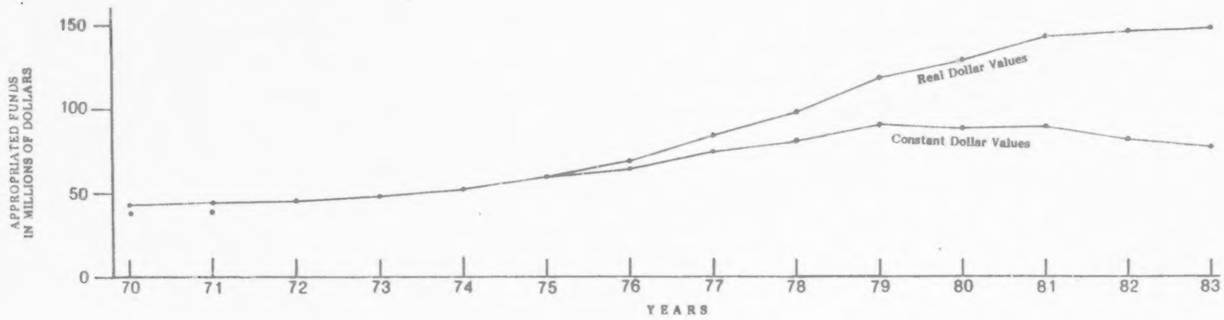
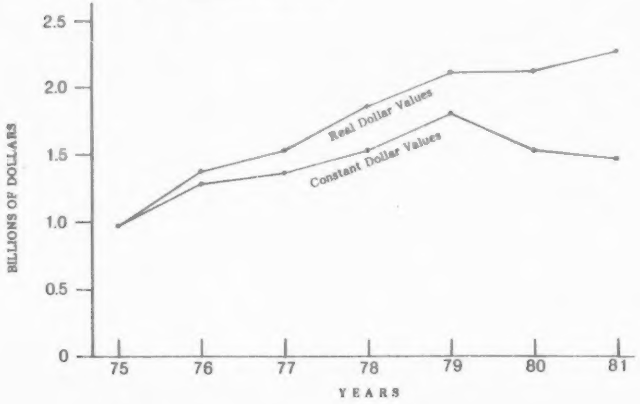
FIGURE II. — NMFS Budget.**



*Bureau of Commerical Fisheries — includes NMFS Vessels and Great Lakes Fishery Lab.
**Does not consistently include all SK and Fishery Management Funds.

FIGURE III. — Value of fishery landings.



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The U.S. is a nation of 233 million people with an annual Federal Budget of nearly $850 billion, a Gross National Product of $3 trillion, Commercial Fishery Landings of $6.2 billion at retail, and Recreational Fisheries with an economic value of $5 billion. Yet we have chopped NMFS staff to 1834, and proposed in fiscal year 84 to further reduce it by at least 389 positions. Our fishery resources are migratory and occur along 95,429 miles of U.S. coastline with an economic zone 200 miles wide. The existing staff of 1,834 and budget of $148 million is already at a "starvation" level. If we need and expect to continue enjoying the many bounties of the sea, then we must be good stewards. Indeed we should be expanding rather than looking for further cuts.

The NMFS staff is scarcely equal in number to two battalions of infantry, and its total annual budget would hardly buy half of one B1 Bomber. Yet the Nation's Marine Fishery Industries had an economic value of at least $11.2 billion in 1981. Under NMFS and State cooperative management, fishery landings and markets are growing and there is much more to be gained by providing adequate resources to get the assigned job done.

We recognize that under the existing budgeting procedures no official of the NMFS can come before the Congress and ask for, or even identify, the fiscal resources which the professionals of the agency have found are necessary for proper management of the Nation's renewable aquatic resources. Obviously any Administration has to control budget requests, however, there must be a way for the Congress and the public servants of the Government to communicate on these vital national resource needs. We believe that the Committees of Congress should conduct oversight hearings to document the dollars and staffing (including scientists, other professionals, support personnel, laboratories, vessels, equipment, and funds) necessary to adequately manage the nation's marine fishery resources in the public's best interest. The historic neglect has endured too long. In the interim we believe that the proposed 1984 NMFS budget reduction should be disallowed.

LOOKING AHEAD

There are dramatic examples of how past and present activities of NMFS have served the Nation well. In earlier years, the exploratory fishing program led to major fisheries being established for shrimp throughout the Gulf of Mexico and Caribbean, for Atlantic offshore lobster and clams, for Alaska crab and bottomfish, and many, many more.

Fisheries research and skilled negotiations have led to equitable treatment of U.S. interests in fisheries treaties and agreements throughout the world. Consider salmon and tuna in the Pacific, groundfish in the Atlantic, shrimp off South America, and many more. In more recent years, fisheries research developed information which has led to improved investment decisions, saving vessel and processing plant operators untold millions of dollars through predictions of stock abundance. Examples include predictions of the decline in North Pacific crabs and Atlantic haddock and herring. Such predictions not only reduce overcapitalization, but also provide the basis for fishery managers to implement rules to prevent overfishing and total stock collapse. Fisheries managment plans have been in existence only a short time, yet we have seen major benefits already. As one example, the Gulf of Mexico fishery management plan for shrimp yielded a benefit of $12.1 million at the fisherman level in 1981—its first year of implementation! Fisheries management and related research led to increased yields from the stocks. The Federal investment is repaid many times over.

Together the NMFS programs provide a comprehensive/integrated approach to ensuring the continuing productivity and wise of the Nation's living marine resources.

In order that we use our resources wisely, we must understand and protect them and their habitats and we must have a stable and strong industry. The various facets needed to do this are all addressed, albeit in a very modest way, under the present NMFS program. To permit the proposed budget to be enacted would further decimate a program that has served the Nation's fisheries well for over one hundred years.

Throughout its existence, the fisheries program has made the changes necessary to meet the needs placed upon it. In the 1800's and early 1900's there was a need to know why stocks were decreasing. In the 1950's and 1960's, there was a need to focus on exploratory fishing and international treaties. In the 1970's and 1980's, the focus has been on domestic fisheries management.

Although the focus has changed over the years, a complete program has evolved which integrates all facets of the fisheries spectrum. For example, state grants cannot be terminated without terminating much of the collection of fishery statistics used by NMFS in fisheries management. The fisheries research fleet cannot be tied up without rendering useless the vital time-series of resource assessment data upon which stock abundance predictions are based. Research on Pacific salmon interceptions cannot be ended without ending hopes for a Pacific salmon treaty with Canada, and similarly, research on habitats is vital to both predicting stock abundance and to finding ways to mitigate the effects of coastal development.

This program integration is not limited to NMFS. For example, the Sea Grant Marine Advisory Service provides a vehicle for transfer of NMFS information and technology to the fishing industry; the International Trade Administration uses NMFS materials to develop fishery markets overseas; the Department of State uses NMFS recommendations to negotiate treaties on fisheries and protected species; and the Corps of Engineers uses NMFS recommendations to allow development of coastal areas while keeping fisheries habitat loss to a minimum. These are but a few of the many instances of how NMFS information is integrated with the work of other entities.

The United States owns roughly one-fifth of the world's fishery resources. Despite the enormity of these resources, we still import four billion dollars in fishery products annually. Since our fishery exports amount to only about one billion dollars, the resulting deficit in fisheries trade makes the fisheries sector one of the single most important factors of this Nation's trade deficit, accounting for 12 percent of the total.

Our fisheries represent a renewable resource, which, if properly managed, can be maintained indefinitely. Fisheries experience shows that if the stocks are mismanaged, they can be overfished to the extent that recovery will take decades and, even then, be uncertain.

NMFS programs require budgetary enhancement. It will be impossible to accomplish the intent of Congress for the conservation, management and development of the Nation's living marine resources within the budget proposed for 1984. The American Fisheries Society urges Congress to at a minimum restore the proposed reductions in the NMFS budget.

We next discuss briefly some of the matters of greatest concern to the American Fisheries Society, following the format of the proposed budget.

INFORMATION COLLECTION AND ANALYSES—FISCAL YEAR 1984 BASE: $75,049,000

This Subactivity provides for the funding of most of the resource research and management information development activities of NMFS. With these funds NMFS collects and analyzes a broad range of information on fishery resources and the fishing industry. This information is essential for decision-making by fishery managers and the industry. The Administration is seeking a 26 percent seeking a 26 percent reduction ($19,297,000) in this work. We find this incredible in light of the increasing complexity of ocean use and fisheries allocation issues. As the quality of information available decreases, fisheries managers must become more conservative in their setting of harvesting levels in order to protect the stocks. With more accurate information, the manager can set harvest levels closer to maximum economic yields, thus returning the Government's investment in fishery research, many times over.

We could speak at length on the impacts of the proposed cuts and the need to restore and in many cases, increase funding. Perhaps we can most expeditiously accomplish this by highlighting some of the impacts of the proposed cuts.

The reductions in research vessel funding and fish stock analyses will destroy the utility of the time-series of resource assessment data on all coasts and will seriously limit the availability of fishery-independent information for fisheries management. It is preposterous to think the $4.3 million planned for vessel charters (about 40 percent of the present vessel funding level) is capable of filling, (in either quantity and quality) the void in resource survey support caused by the tie-up of the NOAA fleet.

The research on the interception of salmon will end—thus dashing the hopes of a salmon treaty with Canada. Last year the Congress (in S.R. 455) demanded a strong U.S. position in treaty negotiations but without credible information to make our case with the Canadians.

Sea turtle populations in the southeast will be further jeopardized by the reductions in research which has shown great potential for increasing knowledge of the status of these animals, and for reducing the take of several endangered species in shrimp trawling. This research is critical if we are to resolve the conflict between protecting endangered species and achieving full production from one of our most valuable fisheries.

The habitat research program is proposed for a 54 percent reduction. This occurs at a time when estuaries are increasingly threatened by development and pollution. Healthy estuarine environments are absolutely vital to over two-thirds of our fishery resources including shrimp, our most valuable fishery, and menhaden, our greatest volume fishery.

All aquaculture research in NMFS (and, of course, Sea Grant) would end, thus "pulling the rug" from under an infant industry which has considerable potential for meeting market demand for species with wild stock production already at its maximum. Termination of this program will close the Galveston, Texas laboratory and the Manchester station in Washington as well as terminate NMFS support for the Newport, Oregon facility operated by Oregon State University.

Recreational fisheries research and fisheries development work at Tiburon, California will also end and the laboratory will close.

The work on the application of remote sensing to fisheries at the National Space Technology Laboratories in Bay St. Louis, Mississippi will end, and with it NMFS's presence at a major technological center.

The proposed reductions in the recreational fish survey will prevent compilation of vital nationwide sport fishery statistics. Surveys will be conducted only in part of the country each year, thus seriously inpairing the validity of the results.

The reductions in the menhaden and ecosystem analyses work at Beaufort, North Carolina will jeopardize the health of our number one fishery (in terms of landings).

The proposed closing of five major NMFS laboratory facilities is a serious mistake. The Oxford, Maryland lab is a major center of excellence in matters of fish and shellfish disease; the Galveston, Texas laboratory has been the center of research on shrimp, economically our most important industry; the Bay St. Louis, Mississippi facility has the core of the NMFS expertise on remote sensing applications to fisheries; the Tiburon, California laboratory provides basic research on the rockfish complex and several other important West Coast species, and the Gloucester, Massachusetts lab has consistently been a leader in seafood quality, safety and technology development. While the Administration states that only these five facilities will be closed, many of us in the American Fisheries Society believe that the huge budget cuts will sufficiently reduce program levels in other locations so that NMFS will be forced to close additional facilities as well.

Many NMFS research facilities and the scientific expertise and experience they sustain are nationally unique. They cannot be duplicated from existing state, private or university facilities. Once these pools of talent are dispersed, restoration of the facilities and their dedicated teams can be accomplished again only with years of study and work. Study and work to be done when? by whom? with what funds? and what assurance of the continuity essential to scientific credibility? Scientific excellence doesn't just happen, it is built through long years of persistent effort.

NMFS staffs are already stressed in every scientific area by the lack of funds and personnel. There is no staff redundancy for they are spread too thin. In many, if not most situations, there is no back-up staff. It seems an inevitable weakness of excessively limited budgets and it does not bode well for the future because the necessary "next generation" of trained scientists may be non existent.

As you can see, reductions in the information area are not trivial nor are they of a nature to permit the states or industry to fill the void.

CONSERVATION AND MANAGEMENT OPERATIONS—FISCAL YEAR 1984 BASE: $55,506,000

MNFS uses the information addressed in the previous sub-activity as a foundation for its operations in fisheries management, for its conservation of marine mammals and endangered species and for its habitat conservation.

Information services will be curtailed, for with a reduction of 40 percent ($22,040,000) in Operations, there will be few left in NMFS and in the Councils to use the information! Some of the impacts follow.

The budget of Fishery Management Councils would be cut 57 percent, perhaps terminating their ability to provide the effective and Congressionally mandated forum for basic participation in the Fishery Management process. The great strides being made by the Councils in increasing fisheries economic yield would end abruptly. Additional progress so readily attainable, would not occur and regression would surely begin.

The Columbia River program reduction of 70 percent would close nearly 20 hatcheries before possible alternative funding mechanism can be fully explored. This insensitivity to resource impacts and the health of coastal economies in the Northwest is shortsighted and undesirably callused.

Columbia River hatcheries were built as mitigation for the colossal destruction of spawning and rearing habitats of anadromous fish resources. These losses were caused by U.S. Government water resource development projects. The Federal Government should never default on its solemn commitment to mitigate in perpetuity those damages to public resources. Full mitigation has never been attained, and if the Government is not to continue to meet its obligation, it should demand that beneficiaries of the projects assume full mitigation costs. The hatcheries should not be permitted to close, for if they do the salmon and steelhead enhancement planning and coordination activity will end, as will the potential major increases in salmon stocks in the Northwest.

The habitat conservation programs through which NMFS intervenes with other agencies on behalf of fishery resources, is already at a tragically inadequate level. The tremendous value of the program apparently is not recognized by the Administration, for it is scheduled to be reduced by an additional 30 percent.

Of special importance is the fact the NMFS, under the Fish and Wildlife Coordination Act, provides a unique and vital technical advisory service to the Corps of Engineers, EPA, the Federal Energy Regulatory Commission, and other Federal construction and regulatory agencies. Through its Habitat Conservation program, NMFS, in cooperation with State agencies, provides the regulatory agencies with an appraisal of the impact of their action on fishery habitats and recommends measures to minimize them. Those agencies lack the expertise to conduct such resource analyses for themselves. NMFS is the only Federal agency with the necessary scientific background in living marine resources to provide this service, and to forestall irreversible destruction of this nation's fisheries habitat base. For example, in a recent 12 month period, in the Southeast alone, NMFS helped save nearly 17,000 acres of habitat, worth about $33 million in annual fisheries production. Project costs to the affected developers were reduced by about 15 percent through identification of environmentally acceptable alternatives.

We find that unjustified and unacceptable reductions are being proposed in Conservation and Management Operations budgets.

STATE AND INDUSTRY PROGRAMS—FISCAL YEAR 1984: $15,936,000

NMFS operates a series of cooperative national interest programs with the states and the fishing industry. The programs in this subactivity are slated for a reduction of an appalling 80 percent ($12,710,000). The impacts of these reductions are as follows:

All grants to states for fisheries research and development and restoration of anadromous fish (such as salmon and shad) will end; in spite of the success of the grant programs and without regard to the fact that NMFS has worked with the states and industry to move the programs supported by these funds toward Federal objectives. Where will NMFS obtain catch statistics when several states suspend their grant-funded activities in data collection? No part of the budget adjusts for such losses of state services to the Government. The Federal role is legitimate and is necessary. The resources addressed in the programs generally transcend state boundaries (e.g. salmon, striped bass, shad, menhaden) and there is little incentive for any one state to budget for activities which primarily benefit other users of the resource.

Fisheries development activities—e.g. product quality and safety, market development, product development—will be effectively ended. The remaining effort is called catalytic by the Administration. A more appropriate term is "token".

The Saltonstall-Kennedy (SK) fisheries development grant program is not included in this sub-activity, but is related. The Administration proposes to end the program and transfer all funds (derived from 30 percent of tariffs on fishery imports) as an offset against budget deficits. Also, the proposed budget states that no fishery loans for vessels or shoreside facilities will be guaranteed. Yet in December of 1982 the Congress passed a law making such an S-K transfer, and loan guarantee restriction, illegal.

In 1981, our commercial fishing industry produced 6 billion pounds of fish, worth $2.4 billion to the fishermen. There were 200,000 fishermen and 300,000 other persons working in process plants and related industries. The majority of these people live and work in small communities that are very dependent on the commercial fishery. Recreational fishermen also contribute very significantly to total landings and to the economy.

We in the American Fisheries Society are extremely concerned about the NMFS budget proposal, but perhaps even more concerned about the philosophy of disregard for the fisheries that the budget reflects. Certainly it is not a philosophy based on real world evidence, for to cut back on fisheries funding in order to reduce the deficit will have precisely the opposite effect.

This Administration ignored our arguments and the will of Congress in last year's budget proposal. They have compounded our concerns by seeking further dismantling of fisheries programs this year. When and where will it end?

Only with the support of the U.S. Congress will this and future generations of Americans be able to continue utilizing and enjoying the living resources found in our waters. The American Fisheries Society is grateful to the Congress for the manner in which it has assumed the trusteeship of this priceless national heritage.

Sincerely,

CARL R. SULLIVAN,
Executive Director.

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